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THE UNIVERSITY OF ALBERTA

A STUDY OF A COMPREHENSIVE COMMUNITY LIVING
TREATMENT PROGRAM
FOR THE
CHRONICALLY MENTALLY ILL

BY

José P. C. de Cangas

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF NURSING

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled A STUDY OF A COMPREHENSIVE COMMUNITY LIVING TREATMENT PROGRAM FOR THE CHRONICALLY MENTALLY ILL submitted by José Pascual Carrillo de Cangas in partial fulfilment of the requirements for the degree of Master of Nursing.

..Janet C. Kerr....
(Supervisor)

....

....

....

Date: June 16, 1989...

DEDICATION

To all the Chronically Mentally Ill who
taught me about hope and courage
To all nurses who work with the Chronically Mentally Ill
and have the valour to use alternatives
to hospitalization

ABSTRACT

In the field of community treatment for the chronically mentally ill, there is a need for clear, useful measurement of treatment effectiveness. This study of the effectiveness of a comprehensive community treatment program, the Training for Community Living program (TCL), addressed this need by using multifactorial measures of treatment effectiveness. Using an experimental random assignment design, the effects of a community treatment program were compared to the effects of a hospital based program by measuring quality of life, costs of the programs, symptomatology, social functioning, recidivism and length of hospital stay and perceived family burden. Over a six month period, patients in the TCL program, despite their acute symptoms, had better vocational and social outcomes, less symptomatology, lower recidivism and length of hospital stay rates. Most revealing was their reported quality of life and lower perceived family burden than the hospital program patients. Further, the TCL patients' overall treatment costs were substantially lower than the patients in the hospital program.

Despite the limitations of the study, the recommendation was made that the feasibility of implementing TCL type programs be explored.

ACKNOWLEDGEMENTS

This thesis was possible because of the patience, faith and unfailing love of my wife, Helen Wann. Her untiring humour and support made this project's completion possible.

My thanks also go to Dr. Shirley Stinson who through her insistence and logic spurred me to complete this work. Her endless inspiration can be summarized in a poem that she composed and used to explain how everything is possible to those who want things to happen:

HOPE

Pain may reshape
But it's hope that transforms:
Hope for the impossible,
Hope for the future.
Pain makes for compromise -
Hope makes for nurture.

(Shirley Stinson, 1982)

Other remarkable women made this study a reality through their help and friendship, Dr. Jan Kerr whose enduring faith and advise lifted my spirits and doubts during some very dark moments. Mrs. Heather Rennebohm who shared her knowledge and indomitable Irish pragmatism. The TCL nurses Helen Ashmore, Peggy Neufeld, Ramona Levesque, Wendy Steinhauer and Kirby Tunsky require a special thanks. Their professionalism and dedication are

unparalleled.

My thanks to George and Stasia Lucki who shared with me their humour, knowledge and some extraordinary Polish libations.

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CHAPTER I

INTRODUCTION

Statement and importance of the Problem

It is estimated that about 300,000 persons in Canada suffer from chronic mental illness (Toews and Barnes, 1983). This undefined group of former mental patients shares many common characteristics such as frequent hospitalization, high unemployment rates, difficulties in adjusting to the community, lack of social skills, inability to deal with moderate stress, poverty, a higher number of dependent relationships with service agencies and fewer sufficiently meaningful relationships with other members of the community. Frequently, they are seen as a burden by their families and their communities.

A satisfactory definition of the chronically mentally ill population and appropriate measures for effective treatment outcomes remain elusive. Definitions, within the boundaries of a strict scientific framework have not been widely applied to research in the field of treatment effectiveness. Little research takes into account that this definition should incorporate parameters of treatment efficacy and quality of life of the chronic mental patient. The available evidence from a few, well controlled experimental studies suggests that the social learning model is more effective in reducing hospital readmissions, increases the chronic patient's social and community adjustment skill acquisition and may increase the patient's quality of life.

Further work is required, however, with adequate longitudinal follow up in Canadian settings before firm conclusions about the pertinence of the model to this target population in Canada can be drawn. Much remains to be done in the area of developing programs that incorporate these principles. Many suggestions have been offered for ameliorating the severity of impairment of the chronically mentally ill. Insufficient data exists to show which programs are the most effective. It behooves researchers to clearly define the population labelled chronically mentally ill. Measures of program effectiveness that include assessment of social functioning and quality of life have not been applied systematically in a Canadian setting. In this country researchers have not attempted to correlate the individual patient's social functioning, quality of life, community perceived burden and clinical measures to program effectiveness. Cost-benefit studies have not been carried out to elicit which programs are more effective in addressing these questions. Fundamental to these questions is the query: Can chronically mentally ill persons be successfully treated in the community? The answer to this question is of great importance to health planners, policy makers and caregivers. Many models of treatment have been implemented and tried, but questions persist about whether such model programs have relevance and can be generalized and implemented successfully on a wider basis.

One community treatment program model, the Training for Community Living model (TCL), has claimed a higher rate of success in the treatment of the chronically mentally ill. The results of studies carried out regarding its effectiveness indicate that patients in the TCL program fared much better than control patients in terms of symptomatology, employment, socialization, and satisfaction with life. Further, the burden on families and community and cost of treatment did not increase.

This study examined the effectiveness of TCL as a treatment for chronic mentally ill patients in a Canadian venue. Given these conditions, this study of the treatment effectiveness of a comprehensive community program for the chronically mentally ill was timely and needed. This study was conducted in two parts. The first part was concerned with the derivation of a framework which could be used for investigating relationships between treatment programs and measures of effectiveness. The second part of the study was concerned with using the derived treatment program effectiveness framework to examine the effect of the program on the functioning and quality of life of the selected chronically mentally ill patients.

Framework and Relationship

The first part of the study had two objectives. The first was to develop a systematic empirically derived definition of the target population under study. The intent was to provide a restrictive and easily identifiable, therefore operational, sample. The second objective was to identify which forms of service delivery have been proven effective with similar populations in similar settings. This study assumed that service delivery and treatment programs proven effective with similar populations would be effective and adaptable to the population under study. It was further assumed that a treatment mode the TCL approach could be successfully applied to the group receiving the services. That theoretical contention formed the basis of the research question addressed in the first part of the study.

Question 1:

> Is the TCL program viable with a Canadian population of chronically mentally ill patients?

It was not known at the outset of the study if such a program would be applicable to a Canadian setting. The program had not been used anywhere in Canada before. Although the TCL program has been successfully implemented in a reasonably similar U.S. centre in Madison, Wisconsin and in Australia there is some doubt about whether the populations studied are identical to the Canadian setting proposed for the study. It was thought that, even if the program was not applicable to a Canadian venue, the development of a framework for the study of treatment effectiveness for the chronically mentally ill would still have implications for service delivery. Such a scheme might provide operational definitions of both this population and what constitutes treatment effectiveness. It could aid clinicians to readily identify the population and influence the provision of service delivery to this population by becoming part of an assessment of the effectiveness of service delivery systems (Liberman, 1988).

Effectiveness of Programs

The latter part of this study had one objective and that was to investigate the effectiveness of the TCL program in comparison with a hospital based program, using a multifactorial measurement scheme. The purpose of this part of the study was to assess program effectiveness between two modes of service delivery - one a comprehensive community based program and the other a hospital program. The intent was to elicit the effectiveness of both programs in increasing social functioning and quality of life, while reducing clinical symptomatology, perceived family and community burden, hospitalization rates and costs of patients in both programs. It was hypothesized that the TCL program subjects would do better on all measures than their counterparts in the hospital treatment program. If such a relationship existed, it would be assumed to have been a result of the treatment interventions employed in the community based program (TCL).

The conceptual framework and model derived in Part 1 was used in the measurement of all subjects under both the control and the experimental conditions. This conceptual framework and model was derived from the review of the literature and used as a template for the provision service delivery and measurement of treatment effectiveness.

The hypotheses investigated by this section were those related to service effectiveness of both programs. It was the contention in this study that the patients in the TCL condition would score better in all measures of effectiveness. It was further postulated that if the TCL condition was affecting service delivery, the relationship between the measures of program effectiveness and the subjects in the experimental (TCL condition) and the control (hospital treatment condition) would be different. Here it was thought that the TCl subject would score better in all measures of program treatment effectiveness. That contention formed the basis of the second research question:

Question 2:

> What are the differences in recidivism rates, symptomatology, quality of life, patient life satisfaction, patient employment, patient socialization, patient's family and community perceived burden, and costs of treatment between patients treated with the TCL program as compared with a psychiatric hospital treatment program, at six months after discharge?

It was thought that an investigation of treatment effectiveness between two service delivery modes would have implications for mental health delivery service planning and provision. It could supply information to, and evaluation of, present and proposed service delivery methods and their appropriateness to the Canadian scene.

Assumptions and Conceptual Model

Available evidence holds that current treatment modalities for the chronic population do not efficiently address social adjustment, continuity of care and treatment factors which are required by this type of patient. The absence of one or more factors leads to tenuous community adjustment and promotes rehospitalization (Stein & Test, 1980). Attention to those same factors through three theoretical tenets may explain the reported effectiveness of the TCL program. First, recidivism and poor community adjustment are thought, at least in part, to be due to lack of daily coping and social skills in the behaviourial array available to the chronic patient, compounded by a dearth of support services in the community. Second, it is assumed that hospital treatment is not effective in teaching this population necessary community survival skills, and that hospital based treatments do not provide the required community services. The final theoretical basis of this programs holds that skills are better learned in the venue where they are going to be used. Sound rationale and experimental evidence exist to support these assertions (Christensen, 1974: Davis, 1975; Gagne, 1970; Goldstein, 1974; Linn, 1977; Mariotto & Paul, 1975; Murphy, 1983; Strauss and Carpenter, 1972). The TCL model is predicated upon several specific statements based upon these tenets that guide treatment. The cited authors have demonstrated that the learning of skills in vivo requires little generalization, a faculty which the chronic mental patient has difficulty in mastering. The demand characteristics of the community encourage appropriate behaviour. Community role models are mainly healthy. They thus help elicit and maintain appropriate behaviours. The TCL model is predicated upon several specific statements based upon these tenets that guide treatment.

Description of TCL

TCL is a community-based, comprehensive treatment service delivery system for chronically mentally ill persons. The TCL program provides in-vivo social support and training in community living to severely chronically mentally ill patients in a defined catchment area. The key attributes of the program are: individualized services; coordinated longitudinal provision of medical and psychiatric treatments; comprehensive and holistic support. TCL takes the treatment to the patient by using an assertive approach rather than waiting for the patient to be motivated to participate in the rehabilitation process. Patients are actively sought out and involved in treatment by mobile teams of workers who work with patients in community settings rather than in a clinic, office, or psychiatric hospital. Encouragement and support are strongly provided for patients to participate in a range of therapeutic modalities.

The in-vivo teaching of community coping skills includes: a) daily living skills, b) vocational skills, c) medical and psychological survival skills, and c) social and recreational skills. The activities of daily living are taught in the environment specifically relevant to the patient: for example, nurses will train to assist patients to do laundry in the laundromat closes to their home. Vocational rehabilitation involves assisting the patient with job seeking and developing good work and personal habits to maintain a job. In some cases, it means that the nurse will stay with the patient in a the job situation until job skills are sufficiently learned by the patient to continue alone. Jobs are sought in competitive settings rather than sheltered as the latter is view as promoting dependency. Social and recreational needs of patients are met through activities and experiences that enhance social interaction and independence, while taking advantage of the natural environment through available community resources to fill free time in a satisfying and socially adaptable manner.

TCL services are provided by a cadre of workers mainly nurses, vocational rehabilitation counsellors, occupational therapists, social workers, and psychologists. In addition to the individual work provided by the TCL staff, a strong emphasis is placed on involving other community agencies in the process of providing for the needs of patients. TCL also involves volunteers who participate with patients socially and recreationally.

Central to TCL philosophy is that patients are held responsible for their behaviour, as much as is realistic for them. This involves exposing patients to the same consequences for inappropriate behaviour that are given to other members of society. This approach has resulted in a close working relationship with all community agencies, including the legal system. The program identifies the population requiring services; provides assistance in applying for entitlements, advocates for the patients' rights, provides 24 hour crisis services, psychosocial rehabilitation services, supportive services, medical, dental, podiatric and mental health care; involves community members; protects patients rights; and provides case-management services.

All TCL patients are involved in a practical and educational form of individualized therapy mainly derived from learning theory. The therapeutic goal is to help patients come to terms with the fact that they have a chronic mental illness and then focus on those specific areas of their lives that can be changed in order to promote independence, enhance quality of life and social skills mastery. Techniques are specifically tailored to the needs of the patient. There are no specific programs per se; rather programs are either created when needed or sought for a patient when they are required. Patients are also treated with antipsychotic and antidepressant medications as indicated. The majority of patients in TCL are on medications. Medications are seen as a crucial part of the treatment. Most patients receive medications either for acute illness states, prophylaxis, or both. Medical, dental and podiatric care is also provided either directly or sought out for the patient. TCL workers actively help patients to obtain other or more elaborate and specialized kinds of medical care, social network or psychological support, when they require.

Because treatment is individually tailored to patients needs, there is great variability in frequency of contacts between TCL workers and patients, but daily contact, even four or six times a day, is typical during the first month the patient is in the program. Later, during the following three to six months, frequency may drop to a visit every other day. After that, treatment contacts are made according to the patients needs, with many patients being seen daily due to the cyclical form of acute episodes of exacerbation that is typical of chronic mental illness. Many patients are seen daily indefinitely. Length of treatment is predicated upon patients needs, with most requiring involvement for many years.

Every patient has a case management team consisting of a nurse, social worker, vocational rehabilitation counsellor, psychologist or occupational therapist, and a psychiatrist. The team is responsible for coordinating and supervising all aspects of patient rehabilitation. Although the team carries out primary responsibility for the patient all members of the TCL staff are knowledgeable about a patient's needs, thus ensuring continuity of care. To ensure that patients receive appropriate services, TCL staff are case managers for no more than 22 patients for each worker.

All patients have a written individualized treatment plan which is developed for each patient when admitted to the program. The treatment plan covers: 1) initial diagnosis and functional assessment of patient's problems, 2) clinical services needed by the patient, 3) treatment modalities to be used, 4) medications, 5) short term goals, 6) long term goals, 7) nutritional needs, 8) medical and other services required, 9) educational needs, 10) date of next review of treatment plan, and 11) who, when, how, where and what is required to achieve the treatment goals. The plan is reviewed twice a day every day at the clinical meetings with all staff present and implementation is documented in each patient's chart. Documentation includes the patient's response to treatment, problems encountered, suggestions or changes, and revisions.

The program is very comprehensive. It provides nearly all the services needed by the patients and its tenets are predicated in independence and social skills mastery (Stein & Test, 1980).

Operational Definitions

The definition of specific terms, as used in this study, are given below.

Chronic mentally ill patient: A person suffering from a psychiatric disorder longer than six months with this disorder resulting in severe limitations for the sufferer in his ability to interact with his environment and relate competently with others as measured by the clinicians who care for them (Toews & Barnes, 1986; Trainor & Church, 1984).

Chronic mental illness: A severe mental disability which requires at least an episode of hospitalization lasting not less than six months or two or more hospitalizations within a twelve month period (National Institute of Mental Health, 1977).

Patient: A person suffering from a psychiatric disorder longer than six months being admitted to a psychiatric facility for treatment. This disorder will require at least an episode of hospitalization of not less than six months or two or more hospitalizations within a twelve month period. Excluded psychiatric disorders are: organic brain syndrome, personality disorder, mental retardation, alcohol or drug abuse as the primary diagnosis. These persons are residents of the metropolitan area served by the institution, between 20 and 45 years of age, English speaking and literate and their psychiatric disorder results in severe limitations in the patient's ability to interact with their environment and relate competently with others.

Treatment: Any intervention or care received by a patient and given by a professional health care worker.

Symptomatology: An area specific measure of behaviours as measured by the Short Clinical Rating Scale (SCRS) (French & Heninger, 1970).

Recidivism/rehospitalization rates: Used synonymously, and referring to the number of admissions a patient experiences during the research period. Discharge is defined as the time that the patient is released from hospital and returns to the community.

Quality of life: An area specific measure of well being as measured by the Oregon Quality of Life Scale (OQLI) (Lehman, Ward & Linn, 1982). This measure includes patient satisfaction.

Social adjustment: An area specific measure of behaviours which include: employment, socialization, patient's family and community perceived burden and community adjustment, as measured by the Rehabilitation Evaluation of Hall and Baker scale (REHAB) (Baker & Hall, 1984).

Treatment costs: The dollar value of treatment minus the tax contribution of patients during this study. A per diem patient cost for in hospital treatment as stipulated by the institution. This cost will be multiplied by the patient number of days of hospitalization. The outpatient cost will be derived from the amount of time that staff, health workers or those such as policemen, social welfare agents and others spent with the patient. Indirect costs are also included and refer to the costs incurred on the patient's behalf by other agencies. Treatment costs refer to all resources used and the benefits refer to all economic outputs generated by and/or on behalf of the patient. Treatment benefits refer to all economic outputs (revenue) generated by the patient

Family and community burden: The burden placed on the patient's family members and community as measured by the Family Burden Scale (FBS) (Grad & Sainsbury, 1968) and the subjective aspects of family burden as measured by the adaptation of the Expressed Emotion Scale (EES) (Brown, 1985) by Ana Magaña and colleagues (Magaña, Goldstein, Karno, Miklowitz, Jenkins & Falloon, 1986), the Five Minute Speech Sample (FMSS).

Hypotheses

H1 Patients who are treated with TCL will show lower recidivism rates than patients who do not receive this treatment in the six months following discharge.

H2 Patients who are treated with TCL will experience fewer psychiatric symptoms, as measured by the Short Clinical Rating Scale, than patients who do not receive this treatment in the six months following discharge.

H3 The total treatment and community maintenance cost for patients treated with TCL will not be higher than those for patients not receiving this treatment in the six months following discharge.

H4 The reported quality of life of patients treated with TCL will be higher than that of patients not receiving this treatment, as measured by the Oregon Quality of Life Inventory in the six months following discharge.

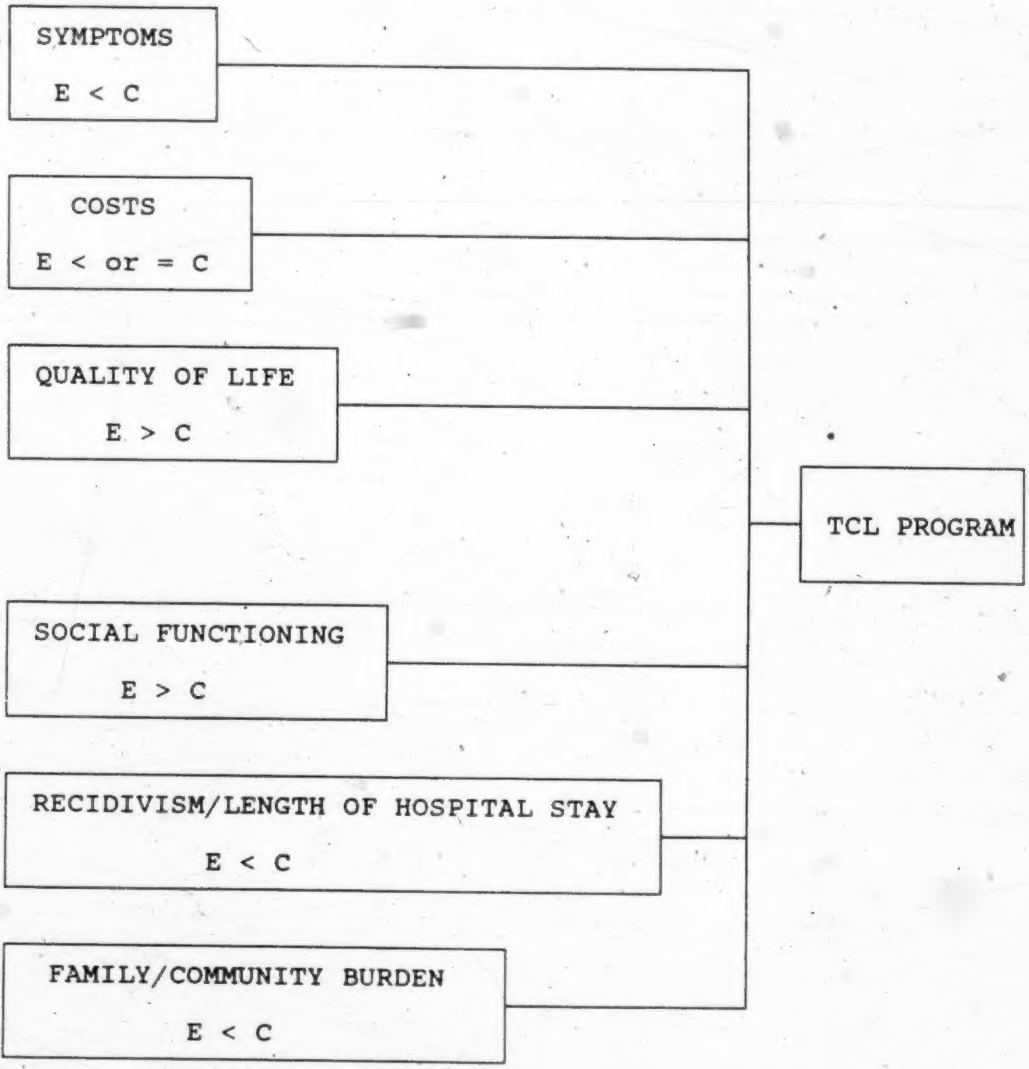
H5 Patients treated with the TCL program will demonstrate higher social adjustment than patients not receiving this treatment as measured by the Rehabilitation Evaluation Hall and Baker Scale in the six months following discharge.

H6 The reported social costs and burden on the community and families of patients treated with TCL will be equal or lower to that of patients not receiving this treatment as measured by the Family Burden Scale and the Five Minute Speech Sample Scale in the six months following discharge.

Figure I graphically displays hypotheses relationships.

Figure I

Framework of Hypotheses Relationships


SYMPTOMS
E < C
COSTS
E < or = C
QUALITY OF LIFE
E > C
TCL PROGRAM
SOCIAL FUNCTIONING
E > C
RECIDIVISM/LENGTH OF HOSPITAL STAY
E < C
FAMILY/COMMUNITY BURDEN
E < C

Ethical considerations

The research was approved by the Faculty of Nursing, University of Alberta, Nursing Research Ethics Review Committee, and by the Ethical Review Committee for Research of the psychiatric facility to be used in the study. All patients participated voluntarily and were informed that they had the right to withdraw from the study at any time without prejudicing their care (see Appendix I). Informed consent was required from the patient, the patient's physician or, if under guardianship, the patient's guardian. At admission, a nurse, explained the implications of the research to the patients. A protocol was developed and rehearsed for the purpose of reliability using a video format and the nurses were trained with it.

As the procedures were deemed to be non-intrusive, no psychological ill effects were be anticipated. Therefore, no other ethical considerations were deemed necessary.

Limitations of this Study

Limitations of the study are recognized. The external validity problems associated with the instruments, due to the fact that they had not been used with a Canadian population. The length and time necessary to complete the questionnaires used to collet the data, are also considerable limitations, although previous experience with these questionnaires by other researchers (Dimirsky, 1986) demonstrated that individual patients are cooperative in answering questions about their life conditions; thus, the administration time for the questionnaires may not be problematic. The size of the sample may not be sufficient to generalize the findings to other similar populations. A further confounding variable is the time of the study, as it has been demonstrated, that the recidivism rate peaks at 18 months (Mosher, 1983).

Significance of the Study

Despite the above limitations, the clinical focus of this project was though to potentially have important results for nursing and psychiatric treatment and care practices. Consideration of symptomatology, community and social adjustment, recidivism, costs of treatment and the patient's quality of life will facilitate understanding of the applicability of the TCL model to Canadian populations and assist with appropriate treatment and care decisions and issues of resource and manpower allocation. Recently, several researchers have advocated this type of research (Carpenter et al. 1988). Research measuring treatment effectiveness has the potential to significantly improve the lives of the patients and their families, while demonstrating cost effectiveness.

Determination of the effectiveness of TCL for this population will facilitate nursing interventions and help with the determination of where, when and how the focus of treatment and care should occur. Examining the efficacy of the TCL model and its potential effectiveness under Canadian conditions may be a valuable contribution to the body of knowledge of this treatment modality. Further, it might provide nursing with an area of independent practice based research in professional and collegial cooperation with other caregivers.

Summary

The foregoing was intended as a brief explanation of the nature and importance of this study and the limitations of the approach employed in addressing the study questions. In Chapter II some of the relevant background literature will be reviewed. That review should provide the reader with an indication of the current state of research in the areas of definition, identification, treatment and measurement of program treatment effectiveness for the chronically mentally ill.

The following chapter will describe the methodology used to carry out the study. Chapter IV presents the results obtained. Similarly, the last chapter provides a discussion of the conclusions that were derived from the results. A discussion of some recommendations derived from those conclusions and suggestions for further study are also included in this the final chapter.

CHAPTER II

SELECTED LITERATURE REVIEW

This chapter has been divided into two sections. The first section presents a review of selected background information on issues concerning nature of chronic mental illness and problems of definition and identification of those with chronic mental illness. The second section is concerned with the current knowledge of the effectiveness of treatment and service delivery programs and the methods utilized , thus far, to measure and evaluate their success.

The chronically mentally ill: problems of definition

Much literature related to the treatment and care of persons labelled as suffering from chronic mental disorders has been published. Despite this, little effort has been directed towards a systematic analysis of the implications in regard to the treatment and care of the chronic mental patient. Although relationships between incidence, prevalence and a definition of the chronic mental patient have been postulated, gaps in this field of knowledge have not been identified. Significant relationships between different forms of treatment and care versus outcomes have seldom been investigated. Bachrach (1988) in a recent paper identified the problems surrounding the definition of the term "chronic mental illness" and concluded that a conceptual model is required in order that useful service planning and research can be accomplished.

Although many approaches in treatment and care have been attempted to reduce recidivism, there is a dearth of knowledge about the effects of such treatments on quality of life, life satisfaction, and costs, as well as other variables. Social and therapeutic effectiveness is an important issue both practically and theoretically. Knowledge about the effectiveness of treatment and care models can shed further light on the utility and efficacy of the model, and its implications for predicting, modifying or controlling human behaviour. This comparison of therapeutic effectiveness may also elucidate the impact of treatment modalities on the quality of life and life satisfaction of this population. Definition problems continue to plague investigators. The amount of literature addressing issues of diagnosis and its effects, definitions, descriptions of treatments and care strategies, treatment outcomes and the psycho-social effects on the individual receiving them, are woven into the fabric of the career of the chronic mental patient. Little effort has gone into analyzing the literature in a systematic way, although this is well supported by researchers (Bannister, 1972; Cooper, 1982, 1984; Jones & Jones, 1987; Light & Pillemer, 1984; Paul, 1969; Paul & Lentz, 1977), but, it is May (1974) who perhaps makes this point more vehemently: ..."One well controlled, carefully measured and adequately analyzed comparison is worth ten or even 100 of lesser quality." (p. 183). This review of the literature sought to elicit what is known about the treatment and care of the chronically mentally ill, and identify gaps in knowledge in this area. Without a precise determination of the characteristics of this population, it will be very difficult to isolate the effects of treatment programs from those of the natural history of the disease, the effect of treatment institutions or other effects.

If research is to be conducted into the effectiveness of treatment methodology for the chronically mentally ill, then, a definition of the population, its characteristics, and the characteristics of effective treatment and care modalities is required. The works of Cooper (1982, 1984), S. L. Jones and P. K. Jones (1987), and the structured framework for developing a review strategy prepared by Light and Pillemer (1984), were used as a basis for this systematic analysis of the available literature.

Descriptions of the chronic mentally ill population

Several approaches can and have been utilized in the description of the chronic mental patient. All such descriptions have their advantages and disadvantages. The approach taken in this section of the review is to address several descriptions of defining this population.

Number of readmissions as a description

The advent, twenty five years ago, of pharmacological methods which controlled and suppressed the symptoms of schizophrenia and allowed those suffering from the disease to receive psychosocial rehabilitation has often been hailed as one of the great medical advances of this century (Wing, 1978a, 1978b). The introduction of neuroleptic medications affected not only the treatment of individuals diagnosed as suffering from one of the schizophrenias, but also their care. The availability of anti-psychotic drugs was the major influence in deinstitutionalization and community treatment of the chronic schizophrenic population. (Bland, 1977, 1982, 1984; Bland & Orn, 1978; Davis, J. M. 1975; Davis, Dinitz & Pasamick, 1974; Lamb, 1982a, 1982b; Paul & Lentz, 1977; Rappaport, Chinsky & Cowen, 1971; The President's Commission on Mental Health, 1978; Watts & Bennett, 1983). In Canada, this impact translated into large reductions of the number of patients in psychiatric institutions.

The effect of deinstitutionalization in Canada is shown in the table below in the rated bed capacity of Canadian psychiatric institutions by province from 1964 to 1985.

Table I

Rated Bed Capacity in Operating Institutions.

Bed Capacity per 1,000 Population

PROVINCE	YEAR						
	1964	1968	1972	1976	1979	1982	1985
Newfoundland	1.7	3.4	1.7	1.0	0.9	0.9	0.9
P.E.I.	3.7	1.8	2.6	2.5	2.0	1.1	1.6
Nova Scotia	4.0	3.6	2.3	1.8	1.0	1.4	1.4
New Brunswick	2.7	2.6	2.6	2.2	1.5	0.7	0.8
Quebec	3.6	3.7	3.2	0.9	0.6	0.8	0.7
Ontario	3.6	3.5	2.5	2.0	1.0	1.2	1.3
Manitoba	3.8	3.2	2.6	2.3	1.1	0.8	1.1
Saskatchewan	4.0	3.2	2.2	2.2	0.7	1.3	1.3
Alberta	3.9	3.9	3.0	2.6	0.8	1.2	1.5
British Columbia	3.7	3.4	2.8	2.1	1.4	1.0	1.2
Yukon	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N.W.Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CANADA	3.6	3.4	2.7	1.7	0.9	1.5	1.1

(cont'd

Table I (cont'd)

PER CAPITA % DECREASE 1964-79; 1979, 1985
Bed Capacity per 1,000 Population

	1964-1979	1979-1985
Newfoundland	47.00	47.00
P.E.I.	45.90	57.00
Nova Scotia	75.00	68.00
New Brunswick	44.40	70.00
Quebec	83.30	81.00
Ontario	72.20	64.00
Manitoba	71.00	71.00
Saskatchewan	82.50	68.00
Alberta	79.50	62.00
British Columbia	62.20	68.00
Yukon	00.00	00.00
N.W.Y	00.00	00.00
CANADA	75.00	69.00

Sources: Adapted from Statistics Canada, Mental Health Statistics, volume III, Catalogue 83-205, 1960, 1965, 1970-75, 1978-79. Canadian Hospital Association, Canadian Hospital Directory: Buyers' Guide and Statistical Compendium, Volumes 33 and 34, 1982, 1985.

This data demonstrates a 75% decrease in the number of patients in psychiatric institutions during the fifteen years reported. The figures also indicate that there has been an increase in the number of readmissions to mental institutions in Canada. Further, as the length of stay has declined substantially, from about 1500 days in 1955 to about 98 days in 1980 (Statistics Canada, 1985), some authors, Glasscote & colleagues, (1971), Gumrucku (1968), Katz & Lyerly (1963), and Stokosky (1967), among others, have interpreted this data as to mean that support care of persons suffering from chronic psychiatric disorders has shifted from the hospital to the community. These statistics are often cited in an attempt to demonstrate that care takes place in the community rather than in the hospital, and that the chronic mental patient comes to the hospital more often while staying in hospital for a shorter period of time. Hence, they conclude, incorrectly, that there is an accelerated rate of return to the psychiatric institution by the discharged patient.

The use of the patient's ability to stay out of hospital as a measure of therapeutic success, and the interpretation of readmission rates to indicate that there has been an explosion in the rise of readmissions among this population is readily rejectable. Brown (1959), Cooper (1961) and more recently Westein (1983) have shown that hospitalization of this population is a function of the patient's social circumstances rather than of other indicators of mental illness or health. Other authors, among them Turner and Gartwell (1978), studied the influence of social factors in psychiatric outcome. They concluded that: "... at least for men, social class position and time spent in hospital are reliably associated" (p. 371). They also reported that: "... marital status is also strongly and independently associated with length and frequency of hospitalization" (p. 383). Westein (1983) concluded that many social factors contribute to the patient's length of stay and readmission, such as home and family circumstances, economic status and resources, prospect for employment and community support. Westein added that the data on the number of readmissions should not be interpreted to mean that there has been an appreciable increase in the number of patients who return to a psychiatric treatment facility or institution after discharge. This is an artifact of the drop in first admissions and can be entirely accounted for by several statistical artifacts. The first artifact is the increased ability of mental health systems to identify patients as previously having received treatment or care. With the advent of Medicare and computerized cross-Canada systems, a more thorough checking of patients' files enables the statistician to identify additional individuals as readmissions rather than first admissions. This is further complicated by the fact that the size of this artifact cannot be measured retrospectively. Secondly, changes to the Mental Health Acts across Canada have meant that most patients who leave the hospital have been placed on leave of absence pending discharge. What this means is that patients are not dropped from the hospitals' statistics. They, therefore, remain officially the hospitals' in-patients while not receiving any follow-up or out-patient service from the institution. More importantly, they affect length of stay and in-patient figures adversely. These facts are incorrectly interpreted as meaning that the same patients are being cared for in both the hospital and the community. This leads to the false assumption that there is a cause and effect relationship between these figures and recidivism rates. Previously, comparable patients were more often placed in some sort of unspecified program or care and were not officially discharged. Hence, when they returned to hospital, they were already on the books and were not counted as readmissions.

A small proportion of patients are discharged, either against medical advice or without any reference to follow-up services. These people, if admitted to another facility, are considered new admissions. Conversely, if re-admitted to the former facility, they are counted as re-admissions. In both instances the credence of the data should be questioned as it has too many interpretations to be considered valuable.

These figures should not be interpreted to mean that there has been a decrease in the number of persons diagnosed as suffering from a psychiatric disorder. Rather, they give further credence to the previous arguments, that is, that while the number of first admissions and re-admissions have increased slightly between 1971 and 1981, the number of patients on the books has decreased accordingly. This phenomenon has been alluded to frequently in the literature as the revolving door syndrome.

It should be reiterated here that this does not mean that the same patient is being readmitted more often. These figures merely reflect the balance between first admissions and readmissions. It says nothing about the population, its characteristics or the factors which make a population more prone to be admitted as compared to another. Thus, it is grossly inappropriate to call those figures readmission rates. Moon and Patton (1965) have developed an alternative measure, the readmission index, which takes these points into account. According to these researchers, the readmission index is the number of readmissions during a year per 1,000 discharges during the previous 3 years. Contrasting the readmission rates with the readmission index (using Moon and Patton's formula) there has not been any consistent trend in Canada during the past 20 years. The readmission rates are stable, not random.

The previous arguments indicate some, but not all, of the difficulties encountered in defining the chronic mental patient within the context of recidivism. Care has to be taken in using recidivism or readmission rates as a factor in the definition of this population. One of the other criterion used in measuring recidivism as a factor in the definition of this population is length of stay. This was reviewed by Erickson (1975). He reported that many ways of ordering data emerged from the literature of hospital and community stay. For example, he reported that in many instances, a length of stay of less than seven days may not have been recorded as an admission; crisis care was almost never recorded as an admission; mean and median length of stay may be used equivocally and follow up is in many instances computed from admission or discharge, or both. He further discussed that, almost without exception, information about computational procedures and methods was not given by the authors.

Without standardization of data collection after the data to be collected is defined, it is felt that a solution to the problems discussed here cannot be solved. It is necessary that criteria defining admission, discharge, readmission, convalescence, follow-up, conditional discharge, probation, leave of absence pending discharge and pass be sought and applied consistently. Some of these practices of reporting admission, discharges and readmissions are difficult to change, it is acknowledged, especially when idiosyncratic practices are supported economically by funding systems which support bed occupancy rather than out-patient services and follow-up. Paul and Lentz (1977) recommended the use of significant community discharge in order to rationalize this area of data collection. This term defines discharge as only occurring when a patient has 30 days of community tenure following his leaving the institution. Significant community discharge appears to make logical sense as a definition of this population.

Diagnosis as a description of chronic mental illness

Most authors agree that diagnosis is a reliable method of defining this population. Tsuang, Woolson, Winokur, and Crowe (1981), using a truly experimental design found that diagnostic stability for schizophrenic patients remained at 93.5 per cent over a 30-40 year period when the diagnostic tool was the Research Diagnostic Criteria (RDC). As well, by inference the Diagnostic and Statistical Manual III (DSM III), of which the RDC is its precursor, when applied retrospectively to a large group (2,456 patients with schizophrenic and affective disorders, proved equally valid).

Carpenter and his associates (1978) studied the prognostic significance of signs and symptoms of patients suffering from schizophrenia. The identified symptoms were defined as relevant to a diagnosis of schizophrenia in a group of 61 schizophrenic patients during a five year period. It was found that only affect predicted poor outcome. Conversely, the nuclear symptoms of schizophrenia were not significant predictors of outcome, thus questioning the importance of the nuclear symptoms of schizophrenia as a predictor of outcome.

The relationship between diagnosis and community adjustment has been studied by Serban and Gidynski (1974) who examined 100 chronic schizophrenic outpatients. Their findings contradicted those of Carpenter and associates.

Serban and Gidynski (1974) found that nuclear symptoms were significantly correlated with outcome, patient functioning and adjustment in the community.

These two studies highlight the need for further research on the area of prediction of patient outcome. More importantly to the purpose of this paper, they stress the use of caution when using diagnosis as a defining characteristic of chronic mental illness (Tsuang, 1982a, 1982b).

Epidemiology as a description of the chronic mental patient

In Canada the incidence of chronic mental illness seems to have remained constant in the last two decades. The incidence of schizophrenia among patients admitted to psychiatric inpatient facilities for the first time in 1981, hovers around 31 per 100,000 population. This is a very slight difference from 1951 for which the reported rate was 19 per 100,000 population.

A perusal of the pertinent statistics for this period allows this conclusion to be discussed in detail. In the light of recent criticism regarding the meaning of this statistical analysis by those who denounce this rate as excessive and prognosticated that deinstitutionalization would mean increased incidence, the figures presented in Table I should speak for themselves.

Stromgren (1987) has recently questioned the validity of results obtained by researchers on the epidemiology of schizophrenia during the last century. He remarked that although it has been reported that no significant differences in prevalence and incidence have been reported either for specific populations or over time, it may be that this is an artifact of the way statistics are obtained. He points out that most reports rely on hospital statistics which may represent only a fraction of the cases and do not take into account differences between populations. He further argues that field studies of prevalence and incidence are rare, and only if field studies are conducted can reliable conclusions be made about incidence and prevalence. He continues by pointing out the obvious difficulties of diagnostic classifications and the gathering of census data especially from this population who isolate themselves and are in many instances without domicile. He admits, however, that conclusions from his critique are uncertain and will have to be assessed with great caution.

The question remains, "How many chronically mentally ill are there in Canada?" This is difficult to ascertain as there are no clear figures. Some have, however, extrapolated using United States (U.S.) figures that approximately 1% of the population presently receiving care for a psychiatric disorder in a supervised setting (that is, a psychiatric facility) can be assumed to suffer from a chronic disorder, (Goldman, Gattozi & Taube, 1981). If this is the case, we can then estimate that in Canada about 200,000 people are in need of mental health services designed to alleviate chronic mental conditions. A caution should be entered here, as any deduction from U.S. figures is tenuous at best. Canadian figures are required to arrive at such estimates. The most recent statistics available from Statistics Canada are for 1981. In that year there were 78,782 first admissions to psychiatric facilities and 62,787 readmissions. Of those, 36,265 of the first admissions were diagnosed as suffering from some form of psychosis and likewise for 23,789 of the readmissions. The latter group also had the longest length of stay (about 125 days). As Statistics Canada statistical data are event rather than cohort statistics, it is impossible to determine the numbers of readmissions of any given patient. By using this Statistics Canada data, it is possible to estimate that about 60,000 people with a diagnosis of psychosis or schizophrenia can be expected to become chronic. If one adds the numbers of persons suffering from organic conditions and other mixed diagnoses, one will again return to the 200,000 figure. Bland and his colleagues (1982, 1984, 1988), utilizing a different method, arrived at similar figures. Bland and co-workers (1988) in a recent and scientifically sound study carried out in Edmonton, Alberta, Canada estimates the rate of chronic mental disorder due to schizophrenia as 1.1 per 1,000 population and due to psychosis as 2.3 per 1,000 population. This gives a total of 3.4 per 1,000 population for an approximate total 75.000

chronic patients with schizophrenia or psychosis. The remaining 125,000 incorporate the remaining psychiatric disorders.

The above figures suggest that of the 200,000 persons estimated to require services as a result of a chronic mental disorder, one-third are persons with schizophrenic disorders, one-third are diagnosed as having organic brain syndrome and the remaining third with other diagnoses, all of which are chronic in nature. Some authors affirm that this may well be a conservative figure, and that 300,000 would be more realistic (Toews & Barnes, 1983, 1986). As an example, in Edmonton, Alberta, Canada, in excess of 1,200 patients are discharged annually from a psychiatric institution, and about the same number from psychiatric units of the city's general hospitals. About 800 of the above numbers suffer from a chronic mental disorder, (Bland, personal communication, May 5, 1986; Murphy, 1983). By using the previously mentioned estimation methods of predicting incidence, Edmonton may well have upwards of 20,000 persons suffering from a chronic mental disorder. This estimate, however, may well be a conservative one.

During 1986, Alberta Mental Health Services in Edmonton, an agency that provides follow-up services to patients who agree to voluntarily seek services, followed approximately 800 patients considered to suffer from a chronic mental disorder (Executive Director, Alberta Mental

Health Services, Edmonton Region, personal communication, March 6, 1987). If one takes into consideration that due to the nuances of the Province of Alberta's Mental Health Act (1985), treatment and follow-up of discharged mental patients is voluntary and thus only provided to patients who both seek it and avail themselves for therapy, further credence is given to the prevalence estimates. Alberta Hospital, Edmonton, a psychiatric facility mandated to provide psychiatric treatment to individuals certified as suffering from mental disorders according to the province's Mental Health Act, provided outpatient services for 1,500 patients categorized as chronic patients in 1986 (de Cangas & Flor-Henry, 1989). Alberta Hospital, Edmonton has no organized, sanctioned or funded outpatient services. Treatment of this kind is provided on an ad hoc basis. Once again, this data gives credence to the predictive figures of prevalence. Finally, if one applies the 3.4 per 1,000 population (which is the estimated incidence ratio for chronic mental disorder) to Edmonton's population of 571,085 (Alberta Community and Occupational Health, 1986), 1,944 persons will be estimated as suffering from chronic mental disorders.

If one compares the 1,944 figure of estimated chronic mental health patients in Edmonton with that of 13,000 persons suffering from Diabetes Mellitus, in the same city (Executive Director, Diabetes Action Centre, Edmonton

Alberta, personal communication, March 9, 1987), the size of the problem may be better appreciated.

Prior hospitalization as a description of chronic mental illness

Several authors among them Lipsius (1973), Mendel and Rapport (1969), Rosenblatt and Mayer (1974), and more recently Lamb (1982a, 1982b) and Bacharach (1980, 1982a, 1982b, 1984, 1986) concluded that a history of prior hospitalization is positively and significantly correlated with the care giver decision to rehospitalize individuals belonging to this population. Rehospitalization is often alluded to in the literature as recidivism. The terms are used in this paper interchangeably, Rosenblatt and Mayer found, however, discrepant evidence concerning the relationship between symptomatology and subsequent decisions to readmit this population. They postulated that decisions to rehospitalize are closely related to the social conditions (poverty, unemployment, homelessness) experienced by this population rather than symptoms or diagnosis.

Diagnosis, it has been generally concluded, lacks predictive power in relation to recidivism (Buell & Anthony, 1975; Lorei & Gurel, 1972; Hawk & Carpenter, 1986). The researchers found that when appropriate controls are included in the research design and when double blind and prospective studies are carried out, diagnosis does not predict recidivism. It appears that when clinicians have prior knowledge of diagnosis, this information influences their decision to re-admit the individual to hospital.

Given the above problem of defining this population and the strong bias to re-admit, Viesselman, Spalt and Tuaron (1975) also found that a decision to rehospitalize was highly correlated with a diagnosis of schizophrenia when this past diagnosis was known to the physician interviewing the patient for possible admission. As a result, the use of number of rehospitalizations as a factor definition of chronicity can be further called into question. The relationship between the physician's prior knowledge of diagnosis and his decision to rehospitalize has also been researched by Rose, Hawkins and Apodaca (1977), who in an elegantly and well designed double blind experiment, found a significant correlation between the physician's prior knowledge of the individual's diagnosis and a positive decision to rehospitalize.

Length of stay as a description of chronic mental illness

Although little work has been done in this area, the recent focus in the U.S. regarding a prospective payment system, the so-called Medicare Diagnostic Related Groups (DRGs), has prompted some researchers to investigate the development of methods to forecast required length of stay for psychiatric disorders. (Taube, Lee & Forthofer, 1984; Uyeda & Moldawsky, 1986). The conclusions of these researchers was that DRGs have little predictive power on length of stay for the chronically mentally ill patient. Anker (1961) concluded that clinical and demographic variables fail to predict length of stay. More recently, Cyr and Haley (1983) in a conclusive experimental study reported that such variables account for too small a proportion of the variance and, "... the asymptote in prediction of length of stay has been reached based on this type of information" (p.639).

Allen, Lolafaye, Beasley and Spohn (1987) indicated that much of the difficulty with previous research in the area of length of stay is that it has focused on patient characteristics rather than the type of treatment setting. There is evidence to indicate that treatment setting and treatment type are the significant variables in the quest for a prediction of length of stay (Binner, 1986; Jencks, Goldman & McGuire, 1985). Allen and his associates investigated these variables using content analysis of 545 vignettes provided to them by fifty-four clinicians describing psychiatric patients whom they considered to be ideally suited to various lengths of stay. In their research they developed a conceptual model for research on factors affecting length of stay. Their findings and their conceptual framework developed from the data substantiates previous evidence that treatment type and setting are more accurate predictors of length of stay than other variables, especially diagnosis and recidivism. The evidence is not conclusive and their findings require replication before firm conclusions can be drawn. The evidence, however, is strongly suggestive of the difficulties of using length of stay as a predictor of recidivism of chronicity especially if taken in unison with that of the other descriptors discussed previously in this paper.

A final point remains. This is the sensitivity of recidivism and length of stay rates for accurately sampling the population in need of readmission to hospital. This is, after all, the larger issue these variables should answer in relation to chronicity. Lamb and Goertzel (1977) present convincing evidence derived from their well-designed and conducted experimental research indicating that about 23 per cent of their sample of 99 patients diagnosed as suffering long-term disability of a psychiatric nature, were rehospitalized after their first hospitalization. Another 32 per cent never received treatment after their initial contact with the psychiatric facility even though they were officially regarded as psychiatrically disabled and thus, were classified accordingly by the social welfare system. It remains unclear, however, if the explanation rests in the group being able to adapt to community living or if it was due to the caregiver's adaptation to the studied population.

Characteristics of the chronic mental patient

There is little agreement in the literature concerning the shared characteristics of the chronic mental patient.

This makes it difficult to ascertain whether the many studies about treatment, care, program descriptions and outcomes of therapy are directed towards an analogous and homogeneous population.

There are, nevertheless, at least three components necessary for an individual person to be labelled as a chronic mental patient: (a) chronicity is a function of time spent in a care system (Kedward, 1974, 1975; Kedward, Eastwood, Allodi & Duckworth, 1975); (b) chronicity is severe impairment of social and psychological functioning as a result of an identifiable disease (Goldman, Gattozi & Taube, 1981); and (c) chronicity is severe impairment in social functioning (Kedward, 1975). While these components are discussed in isolation of one another and emphasized differently, they appear frequently in the literature. Each component will be discussed separately.

Length of tenure in the care system

There is disagreement concerning how long a period of time is necessary and, as well, what the cut-off point is or should be to qualify for the label, chronic. Some authors stipulate that two years of continuous hospitalization are required.(Kedward, Eastwood, Allodi & Duckworth, 1974). However, if one takes into account that the length of hospital stay per admission of this population is 55 days, an argument can be put forth that in addition to continuous hospitalization, the time accumulated between admissions should be used as the criterion for establishing chronicity (Kraft, Binner, Truitt & Morton, 1971). This argument provides a more logical approach to characterize this population, as it takes into account that there is not a known cure for any of the disabilities which make up the term chronic mental illness; thus, the course of the disease is a long one. The statistics, especially when one considers that such statistics are event rather than cohort statistics, shed little light in the search for a cause/effect paradigm that explains the phenomenon of chronicity as a function of multiple re-admissions via available statistics satisfactorily. The cohort statistics, which are meaningful in the study of the interaction between the patient and the service system, appear to be the most important factor in the study of this population.

Recently, questions have been asked about the issue surrounding institutionalization as a characteristic of chronicity. It has been argued (Caton, 1981; Cross, Hassall & Spencer, 1970; Fryers, 1974; Hailey, 1974; Pepper, Kirshner & Ryglewicz,1981; Watt & El-Guebaly, 1981; Wing, 1978a, 1978b) that individuals become chronic in other places than solely psychiatric institutions. To the contrary, it has been demonstrated quite conclusively that most chronic mental patients are not institutionalized at any given time (Crosby, 1987; Herz, Endicott & Spitzer, 1977; Hirsch, Platt, Knights & Weyman, 1979).

Impairment due to disease

A much more problematic component of chronicity to document is severe impairment of social and psychological functioning. The literature is of little help, as most authors define the chronic population loosely and unsystematically. The diagnostic labels used in the literature add to this confusion as most often the diagnostic criteria employed in arriving at a diagnosis is not specified.

There are some aspects of diagnosis that are relevant to a definition of the chronic mentally ill as previously discussed (p. 10). Persons suffering from chronic schizophrenia, organic brain syndrome, chronic affective disorders and personality disorders have been identified at one time or another as subcategories of the chronic mentally ill population (Goldman, Gattozi & Taube, 1981).

Once again, it is difficult to predict chronicity within a disease category. Some authors, including Bland (1982), argue, for example, that one half of those diagnosed with schizophrenia will become severely impaired with chronic levels of symptomatology and functioning. This dearth of diagnostic accuracy and definition adds to the above-mentioned difficulties. The lack of systematically-applied diagnostic categories weakens the credence of any definition of the chronic mentally ill as an identifiable entity, and certainly makes comparisons difficult.

Social functioning

The last characteristic of chronicity cited in the literature is severe impairment in social functioning. Although almost unanimously cited by students as a necessary characteristic to be included in defining this population, it is not without difficulties. There is little agreement in the literature on the criteria to be used to measure social functioning. Most authors agree that socialization, use of leisure time, employment, basic living skills, and basic living conditions are relevant areas for inquiry (Anthony, 1972, 1979; B. M. Braginsky, D. D. Braginsky & Ring, 1969; Cutler, 1983; Church, 1987; Crosby, 1987; Goffman, 1961; Gruenberg, 1977; Gruenberg, Klinger & Grument, 1982; Ely, 1985; Erickson, 1975; Estroff, 1981; Harding & Brooks, 1984; Kanter, 1985; Lamb, 1982a; Stein & Test, 1980, 1985; Talbott, 1984).

Definition of the Term Chronically Mentally Ill

The word "chronic" has been used liberally in the preceding pages. Its definition will now be addressed. The term, chronic, is associated with a negative expectation of the signifier and imparts an emotional response and lack of expectations by caregivers (Crocetti, Spiro & Siassi, 1974; Goffman, 1961; Sheff, 1966). Unfortunately it also appears to best define this population. Thus, it will be the term used to describe the population described in this paper.

For the purposes of this review, chronic mentally ill will be defined as persons suffering from a psychiatric disorder longer than six months, and this disorder results in severe limitations for the sufferer in his ability to interact with his environment and relate competently to others, as measured by the clinicians who care for them. Conversely, chronic mental illness will be defined as a severe mental disability which requires at least an episode of hospitalization lasting not less than six months or two or more hospitalizations within a twelve month period.

These definitions represent an amalgam of that of Trainor and Church (1984), Toews and Barnes (1986) for the former (chronically mentally ill), and that of the Community Support Program of the National Institute of Mental Health (1977) for the latter (chronic mental illness). There are some reasons for this decision. The definition of "chronically mentally ill" represents the best attempt so far to integrate all the components of the term chronic mental patient. It is Canadian-made, and thus represents a Canadian understanding of the term. It is multidisciplinary and arrived at by professionals who have "hands on" experience with this type of population, and lastly, it incorporates an integrative perspective which includes medical, sociological and psychological components. The definition of chronic mental illness, although plagued with difficulties and not shown to be reliable as yet, provides an operational definition of the term which makes as much sense as any other in a obscure and murky field of knowledge.

It is acknowledged that these definitions have problems and are ambiguous. However, they provide a point of departure to commence systematic research in the area. The focus in reviewing the literature while applying the operational definitions advanced here is to identify and discuss the sharing of characteristics that have been put forward in the last two decades by workers and authors in the field of psychiatric chronicity as important for the understanding of this population. It is hoped this identification will add to the discussion of treatment methods using a common template of understanding, and by applying a common denominator to the issue of effectiveness of treatment in a field which has used neither in its discussion of efficacy and treatment methodology. This has resulted, at least in part, in a disjointed and disorganized application of treatment knowledge to this population. It also has frequently lead to the treatment of the chronic mentally ill without careful consideration of the treatment implications regarding the patient's quality of life.

Summary of literature review on the problems of definition

This limited review of the literature has identified the lack of consensus on the specific character of the concepts, "chronic mental patient" and "chronic mental illness". Although several criteria among them - diagnosis, length of stay, social and other disability, and prior hospitalization are used by many authors in the western world to define both concepts, a precise definition has not been postulated. Bachrach (1988) points out that a conceptual definition of terms is essential if uniformity in service planning and research on the chronic mentally ill is to be fructiferous. In this study a conceptual and research definition of both Chronic Mental Illness and Chronic Mental Patient is derived from the literature review and postulated as a conceptual model to guide the study's investigations. Later the applicability of the postulated definitions to the model as they are used in researching and evaluating treatment modalities and service planning will be discussed within the context of treatment effectiveness.

Evaluation of treatment methodology

The chronically mentally ill population; which shares the common characteristics of vulnerability to psychiatric rehospitalization, difficulties in adjusting to community living and marginal community functioning; has been extensively studied (Brekke & Test, in press; Glick, Hargreaves, & Goldfield, 1974; Glick, Hargreaves, Raskin & Kutner, 1975; Glick, Hargreaves, Drues, Showstack & Katzow, 1976, 1977; Glick, Hargreaves, Drues & Showstack, 1976a, 1976b; Hargreaves, Glick, Drues, Showstack, & Feigenbaum, 1977; Hoch & Zubin, 1961; Ludwig, 1968; Ludwig & Farrelly, 1966, 1967; Ludwig & Marx, 1968, 1971a, 1971b; Ludwig, Marx, Hill & Browning, 1971; McGlashan, 1984a, 1984b; Marx, Test & Stein, 1973; Paul, 1969; Paul & Lentz, 1977; Mosher, 1983a, 1983b; Nuehring & Ladner, 1980; Redlich & Kellert, 1978; Stein, Test & Marx, 1975; Stein & Test, 1975, 1976, 1978, 1980, 1985; Stephens, 1978; Stroul, 1986; Test & Stein, 1978, 1980; Torrey, 1986; World Health Organization, 1979a, 1979b; Watts & Bennett, 1983; Zubin, Sutton, Salzinger, Burdock & Peretz, 1961). Many and varied treatment approaches have been attempted with the intent of reducing hospitalization and the levels of impairment suffered by this population. The path of reviewing the literature of treatment and care of the chronic mental patient is well travelled, Zubin and his associates (1961), reported on the existence of more than 800 outcome studies of schizophrenia by 1961. Since then, Sartorius, Jablensky & Shapiro (1977), Stephens (1978) & McGlashan (1984a, 1984b) have summarized most of the remaining studies.

McGlashan (1984a) suggested criteria for the review of studies in the area of treatment effectiveness. These criteria included: diagnosis using specified criteria, predictor/demographic information, multidimensional outcome of treatment and/or care along the lines of the definition of chronicity employed in this review, independence of data collection, bias testing of missing subjects, and the use of statistically appropriate measures. When the researcher applied this criteria to the existing studies he found that of the 35 studies which reviewed treatment outcomes in relation to chronic schizophrenic patients, none met the specified criteria. Only sixteen used operational criteria for diagnosis. Of the 19 that did not, 13 reported that diagnosis was determined by clinician agreement, but, the criteria were not specified. Virtually all studies have missing subjects ranging between 3% to 38% without being explained. Only ten of the studies explained the bias of their diagnostic subsamples. It should be further commented that the author did not test for reliability. None of the studies reported on reliability. McGlashan concludes that the data on treatment outcome is of little value for cross-study comparisons.

Carpenter (1986) has added a new dimension to discussions relating to treatment outcome. He contends that although it is the clinical relationship which makes the difference in treating the chronic schizophrenic patient, little effort has gone into integrating models of treatment and scientific data. The author espouses that this fact is due to the clinician's intervention being limited by prevailing ideologies rather than an integrative approach, which in his view will allow for definition of a large range of data and integration of techniques relevant to the therapeutics of the chronic mentally ill.

Liberman (1986) echoes these sentiments and extends them by asserting "The refractoriness of large numbers of psychiatric patients to conventional and customary forms of therapy will fuel development of psychiatric rehabilitation that is efficacious and empirically based." (p.540) Anthony & Liberman (1986) in their flawless and scholarly review of the historical, conceptual and research bases of psychiatric rehabilitation conclude that the overall goal of the psychiatric rehabilitation of the chronic mental patient is to assure that this patient can perform those physical, emotional, social, and intellectual skills needed to live, learn and work in the community, with the least amount of support necessary from professionals. This definition incorporates the major constituents of appropriate psychiatric rehabilitation practice as it applies to the chronic mental patient. It will be used from here on as the guiding concept in the analysis of treatment methodology and measurement of outcome.

To this point, the review has focused upon an analysis of the design and measurement flaws found in most studies reported in the literature. This section of the review will address that small segment of the literature that, by and large, conforms to sound scientific principles. The definitions of chronic mental illness, chronic mental patient and psychiatric rehabilitation will be used to guide this analysis.

The myriad variety and means of therapeutic interventions leads into yet another quagmire of definition when discussing therapeutic outcomes and effectiveness. This is part of the rationale to the view endorsed through this review that a framework and delimiting of models of therapeutic intervention for analysis of treatment effectiveness and outcome is essential if useful conclusions are to be reached.

The two treatment models chosen here are the psychotherapy and social-learning approaches. There are several reasons for this decision. Each represents a coherent treatment approach in that theory-based and defined treatment interventions are applied to remedy and ameliorate a condition which involves specific deficits (Backer, Liberman & Kuehnel, 1986; Carkhuff, 1983; Cohen, Ridley, & Cohen, 1983; May, 1974; Liberman, 1984). These treatment approaches make an attempt to be consistent both in application of techniques and vocabulary between the therapists who use them. Lastly, studies satisfying criteria of population selection, experimental design and outcome measurement exist. In summary, these treatment interventions have reasonably agreed upon standardized interventions and studies have been reported in the literature meeting the aforementioned for scientific rigour.

A comment about professional representation in this research is warranted at this stage. It is interesting to note that most of the research on treatment outcomes has been done by either those in psychology, medicine and social work. Susan L. Jones and Paul K. Jones (1987) have recently conducted an analysis of the adequacy of theory development within psychiatric nursing. They incorporated a statistical evaluation of 153 psychiatric nursing articles published in 24 journals between the years of 1970 and 1985. The authors found that 51% of the articles were judged to have "correct" use of statistical procedures. This was defined as the use of a statistical procedure consistent with the study design. While these findings are not of themselves surprising, the meagre amount of research in the area of psychiatric nursing is unfortunate especially when it has been estimated by Bellak (1958) that 5,000 papers had been published on the syndrome of schizophrenia alone by 1958. Bannister (1972) extrapolated that a growth rate in excess of 300 papers per year for the same topic had occurred after 1960. Perhaps, it is Walgrove (1986) who best summarizes the lack of nursing participation in the definition, research and treatment of the chronic mental patient. "In the past three decades, large numbers of psychiatric patients have been discharged to the community throughout the country. One might conclude that nursing positions have moved out of the institutions to provide follow-up for those leaving. However, this is not the case: Community mental health nurses do not seem to be sufficiently present to offer services to these needy and complex clients." (p.473). Thus, it is not surprising that few published materials on the topic adhered by nurses were found and fewer still which addressed the topic in a scientific manner.

Paul and Lentz's 1977 study comparing three treatment models for effectiveness is probably the only one which does not confound findings by overlapping of models of treatment. By using a pure model approach in their design, they prevented criticisms in that: (a) When diagnosis is used in the definition, it is entered in terms of a medical/biological etiology. This variable is partially controlled by clinician agreement which in turn is purported to create population homogeneity. (b) When medication is used, and it is used almost universally, this confounds any other treatment modality. A control group is used, by some, as a means of assessing the comparative effects of the treatment approach additional to medication. However, the almost universal use of phenothiazines in the treatment of the chronically mentally ill is, more often than not, taken for granted without definition of treatment as much as intensity of chemotherapy or any other variables regarding medication intake. (c) Many studies do not present procedures in enough detail to allow for an insight as to the intensity of programming. "Standard hospital treatment" is an example of this. The studies included in this review provide a complete description of treatment strategies.

Psychotherapy as a treatment of the chronically mentally ill

The data reported by May (1968) as a result of a treatment program under his direction, is exemplary in meeting the criteria for inclusion in an area clouded by inconclusive studies. May conducted a three year follow up of 228 randomly assigned patients to five treatment conditions: psychotherapy, psychotherapy with drugs, drugs alone, electroconvulsive therapy (ECT) and milieu therapy. All patients were diagnosed as chronic schizophrenic and acceptance of this diagnosis required the agreement of six psychiatrists. Ratings of improvement for the five treatment groups were made on a variety of instruments including patient's opinion questionnaires, clinicians opinions, Minnesota Multiphasic Personality Inventory (MMPI) ratings and independent non-connected clinicians. The psychotherapy plus drugs and the drugs alone conditions were reported to be superior on all measures to psychotherapy alone or milieu therapy alone. ECT was in an intermediary position. Permanence of treatment effect was not reported upon. Follow-up data on these patients concerning recidivism for a two and a five year period (May, Tuma & Dixon, 1976; May, Tuma, Yale, Potepan & Dixon, 1976) confirmed that the results were true at two years follow-up. The differences were present, but, not significant at the five year follow-up.

May and associates' work represents a vigorous test of the efficacy of psychotherapy compared to several other interventions, but caution should be exercised prior to a statement of conclusions. It can be inferred that the population chosen for this study was that associated with the label, chronic, especially when the requirements for inclusion are taken into account. It is not possible to determine whether drugs enhance the effects of psychotherapy or drugs alone account for all the effect. Leff & Wing (1971) have suggested that differential drug enhancement effects are operative on those patients that comprise the chronic mentally ill population. Thus, it is possible that a drug enhancement bias was created by the selection procedure. Goldberg and co-workers (1977) has also found that chronicity affects efficacy of drug treatment although his data are equivocal and are not entirely in support of Leff and Wing's. Although treatment modalities were well defined by May and associates, intensity and frequency of treatment were not defined. It is impossible to know if those two variables would have produced different results. In confirmation of the findings of May; Anthony, Cohen & Vitalo (1978) & Anthony (1979, 1986), research does not support psychotherapy as an effective means of preventing rehospitalization over a five year time frame as compared to any other tested forms of treatment.

Little valuable research apart from the previously described studies have been conducted regarding the treatment outcome and effectiveness of psychotherapy. Mechanic (1986), in a recent work on the issues surrounding chronic mental illness, concludes that psychotherapy reflects the ethos of the times as well as that of a profession (medicine) which supports fee-for-service and one-to-one forms of therapy. This is due not so much to their results, but, because of their underlying philosophy which substantiates independent practice.

Learning based treatment models as treatments for the chronic mentally ill

The efficacy of the learning approaches involves both selection of behaviours to be modified as well as an appraisal of the intervention's effect(s). Two characteristic assumptions to treatment govern the learning-based model (Hagen, 1975). On the one hand, behaviours are dealt with rather than it being assumed that they are part of the pathology. On the other hand, a functional analysis of the environment is performed to both define environmental contingencies and to delineate antecedents to the behaviours in question (Gripp & Magaro, 1974). Concomitantly, an assumption is made that principles of learning can be applied to all the behaviours under examination.

The behaviour modification literature is rich with detailed studies showing the effectiveness of reinforcement contingencies applied to specific behaviours. Ullman &

Krassner (1975) reviewed about two hundred studies of behaviour modification treatment outcomes and using a strict analysis framework concluded that this method of treatment is very effective in increasing, reducing and extinguishing specific behaviours.

This is not, however, sufficient in the treatment of the chronic mental patient. While progress in improving individual behaviours is a most laudable goal for each patient, the focus of this review is on community integration. It is crucial, therefore, that behaviours allowing for successful re-integration into the community be selected. The literature provides little help in this dimension.

Failure in reducing recidivism and increasing community tenure and adjustment can be due to other factors than solely a failure of the treatment technique. There are: poor choice of targeted behaviours which are wrongly assumed to lead to good community adjustment, and factors which are external to the treatment situation such as public attitudes, negative reactions to the deinstitutionalization movement by the public at large and the professional community, high unemployment rates, and attitudes of law enforcement agencies, among many others. These factors are not mutually exclusive. They form the backbone upon which treatment flounders.

The classes of behaviours thought necessary for good community adjustment by this population has been well documented (Anthony, 1979; Brekke, in press; Crosby,1987; Hagen, 1975; Kedward, 1975; Paul, 1969; Lamb, 1982a; Lamb & Goertzel, 1971; Murphy, 1976; Test & Stein, 1980), these researchers found that the quality of life of this population is extremely low. In general they found that the chronically mentally ill suffer social isolation (defined as lack of social relations with significant others). They are not gainfully employed. Most receive some kind of social assistance and are exploited in financial matters by landlords, merchants, and others. They have an increased likelihood of exacerbation, over time, of psychotic symptomatology, especially when faced with stress. These investigators have constructed, from their research into the living conditions of the chronic mental patient, a conceptual framework and set of guidelines for classes of behaviours thought necessary for good community adjustment and consequent increase in community tenure. These guidelines are: (a) Development of effective interpersonal and social skills (this includes self care activities of daily living); (b) Reduction, control and/or elimination of bizarre behaviours; (c) Improvement of self-image/self-esteem and problem solving ability; (d) Vocational training including both job search skills, job keeping behaviours, and actual work skills.

Test and Stein (1985) summarized the needs and characteristics of the chronic population in their recent review. These authors and others describe the population as vocationally and economically deprived with a high vulnerability to stress which results in exacerbation of psychopathology when exposed to stress. Test and Stein hypothesized that this stress results in extreme dependency on helping systems, either the patient's family or institutions. A deficit of basic living skills (i.e., financial budgeting, use of public transportation, meal preparation, etc.) increases the dependency and low tolerance of stress according to Test and Stein's conceptual framework. While several psychiatric diagnostic labels are used to describe this population, Stein and Test (1980) agreed with most authors that "....the majority, however, carry a diagnosis of schizophrenia" (p. 351).

The treatment strategies, which employ social as well as direct primary reinforcers, aversive stimuli, systematic desensitization, and, lately, cognitive techniques, have all demonstrated effective behaviourial control with chronic populations displaying a variety of problem behaviours which prevented the community adjustment of the patient. The recidivism rate, however, was not substantially affected by these forms of treatment (Anthony, 1972, 1978; Hagen, 1975; Lamb, 1982a; Mechanic, 1986; Talbott, 1978, 1984; Ullman & Krassner, 1975). The recognition of the need to control multiple behaviours in the severely dysfunctional patient led to the adoption of the token economy concept as described by Ayllon and Azrin (1965). Hall, Baker and Hutchinson (1977) as well as Gripp and Magaro (1971, 1974) have reviewed, using strict criteria, token economy programs and concur with Marks, Samoda and Schalock (1968) and Heap, Bobbit, Moore and Hord (1970) that due to methodological weakness associated with questionable technology for the token economy experimental group, this form of treatment cannot be viewed as yielding definitive conclusions.

In contrast, against a background of wailing that is hardly original in their detailing of the inconclusiveness of research literature plagued with methodological shortcomings, Paul and Lentz's work (1977) stands as a promise that conclusive research into treatment outcomes is possible. This research meets all the tenets of this review. The population of their study shared many of the problems of the chronic mental patient. The use of low level psychosocial functioning as a criterion for selection, is strictly defined and applied, although the chosen population for this study displays more assaultive behaviour and less social skills than the majority of the chronic mentally ill population. Paul and Lentz's population has not had a history of recidivism. These are not serious criticisms since behaviour excesses, severity of psychiatric symptomatology and recidivism are some but not all the factors that characterize this population. In addition there are many other factors that influence rehospitalization rates, other than those cited in the preceding paragraphs. The elegance and meticulous adherence to scientific design and methodology makes this study the benchmark against which research into treatment outcomes should be measured.

It has been suggested earlier in this review that the question of treatment effectiveness is only meaningful if asked correctly. The researchers handled this problem by defining the variables needing consideration and questioning what treatment, by whom, is most effective for this individual and with which specific problem, under which circumstances and how the treatment came about.

The three programs compared by Paul and Lentz are described in great detail. Two psychosocial units served as experimental groups while a state hospital treatment condition served as a control. As the hospital had been recently renovated and contained a wide range of adequate facilities and staff, the conditions of all three groups were thought to be similar. The two psychosocial units had an equal number of patients (28) as did the hospital unit. All units were identical to each other in all aspects including staffing ratios with the exception of the colour of the walls.

The hospital condition utilized chemotherapy, industrial therapy, recreational and activity therapy, individual and group therapy and ward meetings. The psychosocial units utilized operant and classical conditioning and token economies. Both utilized procedures that were detailed in a manual, to which criteria there was strict adherence. The subjects were assessed by the Inpatient Assessment Battery prior to introduction of programs, after transfer to program and at each anniversary date. Release and community tenure data were obtained. The definition of successful community stay was set as at least 30 days of community tenure after discharge, self support and independent living. Groups were equated for age, sex, race, socio-economic status, marital status, process reactive status, diagnosis, age at onset of symptoms, cumulative duration of hospitalization, type of previous treatment, current chemotherapy and living relatives. Inclusion criteria encompassed patients between the ages of 18 and 55 years of age; two or more years of continuous hospitalization and similar geographic residence by zone prior to hospitalization. Paul and Lentz concluded that the social learning programs were significantly more effective than the hospital program. This effectiveness was true for all measures taken. Of interest was the finding that disproved Erickson's (1975) suggestion that all therapeutic programs which include staff attention will result in patient progress. Paul and Lentz refuted this as the experimental subjects received less attention by the staff than the controls.

Several remarks are necessary as closing comments on the above research. The population was not randomized and the symptomatology is more severe than that experienced by the chronic mental patient. One and a half years of follow-up does not allow comparison with other programs tracking recidivism for five years or more. Nevertheless, the multiplicity of outcome measures and impressive results of over 90% of all treated patients in the social learning programs remaining continuously in the community after 18 months mitigates this criticism somewhat. However, considering that recidivism increases substantially between 18 and 60 months (Anthony, Cohen & Vitalo, 1978; Lamb, 1982) it remains a serious limitation of this research.

Anthony and his colleagues (1978) concluded in their extensive and thorough review of treatment modalities that no program has been shown to be effective in extending community tenure for more than one year. Their review of the literature included all known forms of treatment modalities including such little known and less studied modalities, as work therapy, total push therapy, and problem solving groups.

Stein and Test's (1975; 1976; 1978; 1980; 1985) conceptual model for community-based treatment offers a more definitive and rigorous application of scientific principles and merits careful exploration. The Training for Community Living (TCL), alternatively known as the Prevention of

Institutionalization Project (PIP) and the Program of Assertive Community Treatment (PACT), grew out of the research of Marx and Ludwig (1967) into new treatment approaches for chronic schizophrenic patients which could reduce recidivism and increase community adjustment of these patients. This model that was first tested at the research unit of the Mendota Mental Health Institute in Madison, Wisconsin, is built on three theoretical tenets. Firstly, recidivism and poor community adjustment are due, at least in part, to lack of daily coping and social skills in the behaviourial array available to the patients, compounded by the unavailability of support services in the community. Secondly, hospital treatment is not completely effective in teaching this population the necessary community survival skills, nor do hospital-based treatments provide the required community services that the chronic mental patient requires for community tenure. Finally, skills are better learned in the venue where they are going to be used. There are sound rationales for this. The learning of skills in vivo requires little generalization, while simulated learning in a hospital requires a high degree of generalization which the chronic mental patient has difficulty in mastering (Gagne, 1970; Goldstein, 1974; Linn, 1977; Mariotto & Paul, 1975). The demand characteristics of the community encourage appropriate behaviour, while the hospital encourages the sick role. Available roles in the hospital are characterized by sick behaviour, conversely, community role models are, mainly healthy and manifest appropriate behaviour (Christensen, 1974; Davis, 1974; Murphy, 1976; Strauss & Carpenter, 1972).

The Training for Community Living Program (TCL)

The training for Community living Program is based upon Stein and Test's model (1980) is based on the premise that both institutional and community programs have failed to adequately serve the most severely-impaired persons with long-term mental illness, that is, the chronic mental patient. Accordingly, the goals of TCL are to increase the length of community tenure, increase psychosocial functioning, minimize psychiatric symptomatology and enhance the patient's quality of life. The TCL model involves the use of techniques which specifically address the problems experienced by this population in the community. Central to the TCL philosophy is the assumption that more natural, non-sheltered settings maximize the patient's opportunity for independent living. Thus model encourages the use of systems which provide services without taking on the characteristics of **total institutions.**

The effectiveness of this model was first described by the inceptors who conducted a series of well-designed and controlled research studies to test the model. The first of these studies (Marx, Test and Stein, 1973) occurred in 1970. The researchers tested the hypothesis that it was the intense support of the chronic mental patient which insured community adjustment of the patient rather than hospital treatments which were designed to prepare patients for community living within the hospital environment. PIP was designed to test this hypothesis.

The project design included random assignment of chronic patients who had been in hospital three to eighteen months, and were not deemed by their physicians to be capable of sustained community living. Patients were assigned to one of three groups. Two groups in hospital continued to receive care designed to prepare then for community living. The third group was discharged, regardless of their state of readiness, and was given intensive assistance by the research program staff who taught and helped them to implement community living skills. All subjects were assessed through the administration of the Short Clinical Rating Form (French & Henninger, 1970, Henninger, French, Slavinsky, Davis & Mueller, 1970) and the Lorr Inpatient Multidimensional Psychiatric Scale (Lorr & Clett, 1966) which were administered by "blind" independent raters at the beginning and at the end of the five month treatment phase. The MACC Behaviourial Adjustment Scale (Elsworth, 1962) was administered by the research staff every four weeks during the treatment phase. The Adjective Check List (Gough & Heilbrun, 1965) was completed by the patients at the end of the treatment phase. Parts of the

Katz Adjustment scale (Katz & Lyerly, 1963) were completed by the patients at the end of the five month treatment phase. As well, the Rosenburg Self-Esteem Inventory was completed by the subjects at the end of the treatment phase. Additionally, measures of autonomy and quality of life, as measured by the Community Adjustment Form were taken every four months for two years following treatment. The amount of time spent out of the hospital during those two years was also measured. The researchers performed appropriate and correct statistical analysis of the data. Barring the difficulties associated with the instruments used, the experimental design was excellent and was carried out with methodical, scientific rigour.

The researchers found that it was quite feasible to carry out a program treating severely impaired and symptomatic chronic mental patients in the community without alienating individuals and agencies. The latter was a spurious, but, important, finding of the research. At the end of the treatment phase, the experimental subjects were living and working in more autonomous conditions than the control group. Irrespective of treatment, all groups showed no differences in symptomatology and self-esteem.

Encouraged by these results, a further study was designed to test the effects of the TCL program (Stein & Test, 1980; Test & Stein, 1980; Weisbrod, Test & Stein, 1980). Subjects consisted of all patients seeking admission to the Mendota Mental Health Institute for inpatient care who met the criteria of residence in Dane County; were between 18 and 62 years of age; and received a diagnosis other than severe organic brain syndrome or primary alcoholism. The subjects meeting the above criteria were randomly assigned to either the experimental community treatment group (TCL) or to the control group by the admissions office (hospital treatment), using a double blind procedure. In total, of 120 patients seeking admission to hospital, 60 were randomly assigned to the TCL community treatment group (experimental) with the other 60 being admitted to the Mendota Mental Health Institute. Subjects were not excluded from the study on the basis of severity of symptomatology or, in fact, for any reason than the other two diagnostic categories mentioned earlier. Demographic characteristics proved to be similar between the groups.

The control group received active treatment at a well-staffed psychiatric facility which provided a full range of programs including a day hospital and follow-up services. The mean length of stay at the hospital was 17 days which is lower than average for chronic mental patients treated in psychiatric hospitals. This indicates that therapeutic programs were present and the non-custodial nature of the facility. Subjects in the control group were treated in the institution until deemed ready for discharge at which time follow-up care and/or links with appropriate community agencies were provided. The subjects in the experimental group were not admitted to hospital unless they expressed severe suicidal or homicidal tendencies. The experimental group patients received treatment according to the TCL model. Program staff worked alongside the patients in workshops and other social settings in order to serve as role models. This occurred via daily, and sometimes hourly, staff contact. Care plans were formulated only after careful consultation with families, important others and agencies. The project staff was available to the patients, their families and involved agencies on a 24 hour basis. The experimental condition continued for fourteen months. The measures were those used in the previous research with the addition of economic costs.

The researchers' findings were also similar. Of the 60 individuals in each group, 54 in the control and 6 in the experimental situations were hospitalized ($p<.001$ by Chi square). Of the 54 patients in the control group which were hospitalized, 14 were readmitted within four months, that is, the expected 32% to 38% readmission rate reported for this population. Again, it was found that the experimental group did better in terms of employment, socialization and satisfaction with life than the controls. The results showed that the TCL group did not increase the burden of families or the community. The cost of treating people in the TCL program was no greater than the hospital group. A further finding was that patients did well when they were involved in the program, but not so well without the program. This is a major finding. It implies that there is no known cure for chronic mental illness and that chronic mental illness as chronic physical disease, requires prolonged follow-up in order to be managed. This is not surprising. What is surprising perhaps, is that it came as such a revelation to the researchers.

Since 1972, there have been four replications. Hoult and associates (1983a, 1983b, 1984), in Australia, investigated patient outcome, economics and family burden. Using a similar design to the Wisconsin group, Hoult and his co-workers assigned randomly 120 patients presenting for admission to either a control hospital treatment or an experimental group using the TCL program. Conditions for inclusion, measures and analysis were identical to those of the Wisconsin research and so were the findings. In the Australian research, 96% of the control patients were initially admitted and the control group had a 50% readmission rate. Of the experimental subjects, 40% were admitted and only 8% required readmission. Length of stay was 53.5 days for the control group and 8.4 days for the experimental group. Subsequently, Hoult and his colleagues measured burden on community and family, as well as economic costs. Again the findings were similar to the previous ones. The experimental program did not place additional burdens on the community or the patients' families. Moreover, the families of the patients in the experimental group considered the TCL program to be significantly more satisfactory than the control program. The Australian experiment found that the TCL program was less expensive than the hospital program.

A second replication was carried out at the Transitional Services for the Community Support Project in Spokane, Washington (Borland & Higgins, 1980). The treatment effectiveness of the TCL program was evaluated, using a quasi-experimental design. Sixty-one patients, diagnosed as suffering from chronic schizophrenia, between the ages of 18 and 60, with repeated failures in community readjustment and multiple readmissions, were treated using the TCL program model. The measuring instruments were the same used in previous research of this model of treatment. Data obtained on these measures during the two year TCL program period were compared with data on the same patients two years prior to entering the research conditions. There are some problems and limitations with this research since there was no control group. A pre-test, post-test design was used, thus the subjects were their own controls. It may be argued then that time was a confounding factor, and that part of the variance can be explained by length of time in treatment rather than by any particular form of treatment. The subjects showed a reduction of 90% in hospitalization rates as compared with the rates reported prior to the treatment condition. Costs were reduced by $1,000.00 U.S. for each patient during the TCL program condition. Again, caution should be employed in the interpretation of these results due to the limitation of the study design.

The third replication occurred in 1979, using the Harbinger Alternative Treatment Program of Kent County, Michigan (Mulder, 1982). The research compared the clinical effectiveness and costs of the TCL program and conventional hospital treatment. Using an experimental design patterned after the Wisconsin research, 121 chronic mental patients were randomly assigned; fifty-nine to the TCL condition and sixty-two to the hospital condition. The results were almost identical to those of Test and Stein and Hoult and associates. At 30 months, the TCL group had been in hospital a total of 959 days as compared with 5,530 days of the control group. The patients in the experimental group were reported to live more independently, be more successful at holding a paying job, and score higher in the Community Adjustment Scale, daily living skills, social and interpersonal skills, and leisure time skills as measured by the researcher. Mulder found that at the 18 month mark, the costs of both programs were about the same. However, at thirty months, the cost per patient in the experimental group was significantly lower than the hospital-treated patients. The cost findings are parallel to those of the

Wisconsin, Washington and Australian researchers.

Witheridge and Dincin (1986) have reported a replication of the TCL program treatment effectiveness as it is used in their agency, Thresholds of Chicago. They collected data on the program from 1978 to 1984, using a quasi-experimental design. Their findings are essentially the same as those reported elsewhere. However, their methodology does not fulfill the strict requirements of this review, because of the difficulties of the research design. Therefore, although interesting and suggestive, it is not conclusive as it lacks sufficient, scientific rigour to merit an in-depth analysis. The data is, nevertheless, interesting and the enthusiasm of the investigators is commendable.

Stein (1988) concludes that seven (7) principles of treatment are required (see Appendix II for conceptual framework) for successful application of the TCL program:

1. **An Assertive Approach.** This is to ensure that the patient remains involved with the treatment program.

2. **Individually Tailored Programming.** The program should provide what the patient needs to adjust to a stable community life. Careful monitoring and program adjustment to meet changing needs is essential.

3. **In Vivo Services.** Experience and research shows that only learning obtained in the place were it is to be used is transferrable.

4. **Capitalizing on Patient's Strengths.** Better results are obtained if careful attention is paid to the patient's strengths instead of focusing on pathology alone.

5. **Titered Support.** The increase of the patient's independence to the greatest degree possible but not beyond what the patient can tolerate.

6. **Relating to Patients as Responsible Citizens.** The staff must believe that the patients are responsible citizens and have a right to community services and high quality of life, rather than the belief that the patients are allowed by an understanding community to participate in their society.

7. **Crisis Resolution Available Twenty-Four Hours a Day.**

In addition Stein (1988) stresses the importance of working with and for the community in five(5) additional principles:

1. **An Assertive Approach.** A proactive approach to include the patient in community living and activities.

2. **Utilizing a Wide Variety of Community Resources.** Taking advantage and getting a wide variety of agencies to provide services to the chronically mentally ill.

3. **Providing Support and Education to the Community Members.** It is important to support and educate families, landlords, shopkeepers and whomever the patient comes into significant contact with.

4. **Retaining Responsibility for Patient Care.** Coordination and continuity by a sole case manager.

5. **Working with the Family.** Families carry a double burden for too long a period of time. Cooperation and help to and for the families of these patients is essential. Reduction of guilt and understanding of their problems are prime objectives of case managers.

The application of the above principles has meant that the promises made by TCL regarding a better form of treatment for the chronically mentally ill have become facts. However, lately, Test and Knoedler (personal communications July 11, 14 and 15, 1988) after perusal of their longitudinal data (a ten year study now in its fifth year) are convinced that Stein's model lacks three very important attributes: Continuity of Care, that is, the continuous follow up by a care team that shares the same philosophy of treatment for a long period of time (probably for life or until a cure is found, whichever comes first); secondly, Intensive follow-up in a community outreach model, rather than a model which brings the patient for treatment to a clinic, a model which goes to the patient in his/her environment; and, lastly, the Use of "normal" community systems, rather than foster homes, group homes, halfway houses, vocational rehabilitation set ups, or any other agency. The PACT program uses the available and "normal" agencies in the community.

After a careful study "in vivo" of both the Dane County (Stein's model) and the PACT (Test's model), the writer is convinced that the Test model is infinitely superior. However, only careful research will demonstrate which programs have a superior outcome and offer better value for money. This research is forthcoming as Test's longitudinal study uses the Dane county program as its control, the patients in the PACT program being the experimental group.

In summary, while the effectiveness of the TCL program has demonstrated effectiveness in:

1) increasing community tenure of the chronic mentally ill in terms of his psycho-social adjustment and social skill acquisition,

2) reducing treatment costs (or at least been not more expensive than hospital treatment),

3) not increase burden of the community and the patient's family and,

4) increasing the chances of the patient to hold a paid job; researchers are less clear regarding the issues of quality of life. Although quality of life and life satisfaction were mentioned, definitions were not put forth and explained, nor were the measurement tools consistently used. There was a lack of discussion surrounding the issue of internal validity and the effects of instrumentation, maturation and statistical regression upon internal validity. Reliability of the instruments was rarely

mentioned and discussed. Hence, it appears that these variables are questionable and require further exploration and research.

It appears clear that the treatment of the chronic mental patient is not time-limited. Until cures are discovered for these illnesses, the emphasis must be on follow-up care and maintenance should be prolonged and constant. Chronic mental patients do not benefit from being prepared for community living through simulated hospital programs, but rather, from in vivo programs designed to maintain them in the community. Finally, the focus of treatment must be shifted from the hospital to the community. This is not to say that the hospital does not play an important role in the continuum of services, but, that its role should be limited. Treatment needs to occur in the community using normalized venues and procedures which emphasize "normal" and not "sick" role models. Professionals have to move to where the patients are working, living, and spending their time. Caregivers must be willing to practice a community-based, active and aggressive health delivery form of care; that is, be willing to enter the chronic patient environment and not vice versa.

Summary of Literature Review on Treatment Effectiveness

In summary, factors deemed to be important to conclusive and positive treatment outcomes are those which address the questions of: (a) population identification and definition, (b) a defined treatment model and/ or framework which directs therapeutics intervention, (c) an experimental design, (d) control for confounding variables, (e) adequate definition of the dependent variables, especially recidivism, quality of life, reduction of symptomatology, family and community perceived burden, and costs, and (f) an appropriate period of longitudinal follow up.

In spite of methodological considerations and lack of useful definitions, some conclusions can justifiably be made. The chronic mental patient population shares common characteristics which are well-documented in the literature. This population has instrumental and role deficiencies in their relation to society, the community, their families, employment, and the ability to form meaningful relationships with others. These characteristics and the inability of the community to tolerate their bizarre behaviour makes the chronic mental patient more prone to hospitalization and rehospitalization; that is, recidivism.

The above reasons provide the rationale for using recidivism as an important treatment outcome indicator for judging effectiveness of treatment. As a dependent variable, recidivism is plagued with difficulties. Its effect on admission and discharge, treatments, caregiver expectations and treatment intensity, and, conversely, the effect of this and other variables, such as hospital and agency policies on recidivism is often impossible to measure. The problem remains, thus, that most research relies on recidivism as the only indicator of treatment success. This research is questionable as generalizations are difficult beyond the specific localities in which it was carried out, unless the above exogenous and endogenous variables are controlled by the investigators.

The use of diagnosis to differentiate a specific target-population with whom particular treatments can be employed as an avenue of answering questions about the characteristics of this population has proven to be inconclusive. This may be due to difficulties in applying the diagnostic model reliably or the inability of diagnostic categories to predict prognosis. There is an exception to this: chronic schizophrenia. In this instance, there is a preponderance of evidence that indicates that phenothiazine medication coupled with intensive social acquisition programming of the kind TCL provides is effective in the treatment of this population. Although most chronic mental patients have been labelled as chronic schizophrenics, and the interrater reliability of this diagnosis is high, the label, per se, has not been productive in generating effective treatment procedures and techniques. The converse has been argued by many researchers who maintain that because of the difficulties associated with validity in general and reliability in particular of diagnosis as a process, definitive and productive research has been hindered in the area of treatment effectiveness. This is not contradictory. Interrater reliability of chronic schizophrenia is very high, better than 97% as it was commented earlier, but the diagnosis adds little to the choice of treatment.

Psychotherapy, as an effective treatment, is not effective in increasing community tenure and the patient's adjustment to the social milieu in the community, nor does this form of treatment increase the chronic mental patient's ability to obtain and keep paid employment.

Social learning treatment models such as those used by Paul and Lentz (1977) and Stein and Test(1978) strongly suggest that a social learning model that specifies its goals in stringent and scientific behaviourial terms achieve greater success in providing meaningful, community reintegration for this population. Caution should be used in drawing sweeping generalizations about the effectiveness of these programs in that definitions of the population, the independent variables (i.e. recidivism, community adjustment, quality of life, life satisfaction, etc.) are problematic, and have not been adequately researched. Other issues including continuity of care, training, commitment and professional background of the mental health team are also important variables, and have not been sufficiently researched. Perhaps more meaningful to the equation of treatment effectiveness is the issue of service comprehensiveness. This issue has not been tested as a variable in the treatment of the chronic mental patient. This is evidenced by the arguments of certain professional groups, of which medicine is the most vocal proponent, that effective programming can be delivered only through institutions.

Sound experimental research programs are necessary to solve these issues. Special attention to definitions of the population, diagnosis, measures of success, prognosis, quality of life, community functioning and community tenure over time are necessary.

Much has been written about this population by Canadian authors but little if any research has been carried out in this country to address the issues explored in this review. In addition, little research has been carried out by nurses in Canada on the issues surrounding the definition and treatment effectiveness of the chronic mental patient. This neglect by a profession which is highly involved in the delivery of treatment and care of the chronic mental patient is rather surprising.

Summary

In this chapter relevant literature was reviewed to substantiate and provide rationale to guide this study.

The following chapter will describe the methodology used to complete the study.

CHAPTER III

METHODS

This study was designed to investigate the effectiveness of the TCL program on patient functioning, quality of life and program costs during a 6 month period. The target population included all chronic patients admitted to a psychiatric institution with a diagnosis of schizophrenia, affective disorders and previous admissions to a psychiatric facility. The TCL model was evaluated by comparing it with in-hospital treatment along with some form of voluntary community aftercare. Experimental subjects, ESs, were assigned to the TCL approach at admission and followed for six months after discharge by the same team of three nurses who treated them in-hospital. The TCL nurses received special education in the TCL program approach. Care for these subjects was provided by the TCL staff both in hospital and in the subsequent aftercare period. Control group subjects, CSs, were admitted to the psychiatric facility and received the usual psychiatric care which varied widely from patient to patient but consisted mainly of medications and some kind of group therapy. After discharge, the CSs were offered community aftercare. The CSs could decide if they wanted to avail themselves of this service. If the CSs did not want to receive aftercare, no further efforts were made to provide it. In contrast, following the tenets of the TCL model, the experimental subjects were contacted as many times as necessary to engage them in aftercare.

Study Design

A randomized pretest-posttest experimental design was employed. Subjects, in the target population who met selection criteria, were assigned randomly to experimental or control group by the admission office nurse by flipping a coin, heads being for control and tails for experimental assignment of subjects, respectively. CSs were treated in hospital for as long as necessary and then referred to appropriate community agencies if deemed necessary by the attending psychiatrist. ESs were admitted to hospital and immediately linked to one of the three TCL nurses who, from that moment on, coordinated and acted as case manager for the patient. Assessment data on all patients were gathered at the time of admission, time of discharge and six months after discharge. Data were obtained for all subjects through the administration of the data collection tools in face-to-face interviews by research assistants who operated independently of experimental and control groups. Data on both CSs and ESs were reported. No patients were excluded on the basis of severity of symptomatology or for any reason except the specified exclusion criteria; that is, they were excluded if they did not have a primary diagnosis of schizophrenia or affective psychosis and did not have a history of previous psychiatric hospitalizations. Patients were also excluded from the study if they refused to give consent to participate in the study.

Sample

The study population for this study included all chronically mentally ill patients seeking admission for inpatient care at a psychiatric hospital in a large urban centre in Western Canada. For this study population 120 patients were selected. Of this number 60 were in the experimental group and 60 in the control group. Subjects were selected for the study if they met the criteria, that is:

1) Diagnosed with a psychiatric disorder of longer duration than six months. (Excluded psychiatric disorders were: organic brain syndrome, personality disorder, mental retardation, alcohol or drug abuse as the primary diagnosis; that is, the patient could have been diagnosed as a schizophrenic with drug abuse as an example, and met the criteria for inclusion.)
2) An episode of hospitalization of not less than six months or two or more hospitalizations within a twelve month period.
3) Be a resident of the metropolitan area served by the institution.
4) Be between 20 and 45 years of age, English speaking and literate.

5) Consent to participate in the study.

The 60 control group subjects were treated in the hospital as long as deemed necessary by clinicians in charge of their care. They were given available follow-up and community linkages were arranged when discharged; that is, drug therapy and referral for follow-up to available agencies. The 60 experimental subjects were assigned to the TCL treatment program team. The TCL team coordinated the experimental group patients treatment and care both in the hospital and the community.

Setting

The setting for the study was a large psychiatric institution serving a metropolitan area in western Canada. The hospital provides in-patient hospital treatment and no formal community follow-up.

The Independent Variable

All subjects for the study were obtained from persons presenting for admission to a psychiatric facility. The subjects were assessed prior to admission by a psychiatrist and a nurse. If the person was admitted to the facility and meet the study's inclusion criteria the individual was randomly assigned to either the experimental or control groups.

Experimental Treatment

Patients assigned to the TCL condition were interviewed upon admission by a physician and an admission nurse. The majority of these patients were under a warrant of commitment under the Province's Mental Health Act. A nurse from the TCL program team was informed of the admission and proceeded to initiate a treatment plan which included coordination of input by all disciplines, discharge planning and development of guidelines for implementation of in-hospital care and treatment. TCL treatment team nurses had been trained in the use of the TCL model, and, while their education varied from a baccalaureate nursing degree to a diploma leading to registration as a psychiatric nurse, their background and experience were comparable. (The TCL program conceptual model and implementation has been described in detail in Chapter I.)

The TCL program was implemented by training three psychiatric hospital ward nurses who were assigned to the program. The training consisted of three months of intensive study including theoretical and applied clinical teaching on all areas of TCL and refresher lectures in psychopharmacology, psychiatry, community support and psychiatric therapies. The course was administered by the researcher who developed the curriculum and coordinated the training sessions. Training sessions were given by qualified persons in each area. Staff coverage was available 24 hours a day, seven days a week. Patient's programs were individually tailored and were primarily based on an assessment of the patient's coping skill deficits, requirements for community living and enhancement of social functioning. Most treatment took place in vivo, in the patients' homes, neighbourhoods, places of work and recreation. The nurses assisted the ESs with daily living activities such as upkeep of clothing, laundry, shopping, cooking, restaurant use, budgeting, and use of transportation. TCL nurses gave the patients sustained and intensive assistance in finding a job, and the staff continued daily contact with patients and their supervisors or employers to help with on the job problem solving. The nurses assisted the patients in the constructive use of leisure and the development of effective social skills by the staff, who prodded and supported their involvement in recreation and social activities.

Efforts were directed to maximize patients' strengths rather than focusing on their symptoms and pathology. Patients' families and their communities were also the focus of support by the nurses. Assertive follow-up was a crucial component of the program; if a patient did not turn up for work, a TCL nurse would immediately go to the patient's home to assess the problem and institute a solution. Patients' medical states were carefully monitored and treatment was provided as necessary. Psychiatric medications were monitored daily, or as required, for all patients; if required, medications were taken to the patient three or four times a day to ensure compliance.

Control Condition

All patients assigned to the control group were screened upon admission by a physician of the hospital's acute treatment services and an admission nurse. They were also usually under a warrant of commitment under the Province's Mental Health Act. They received progressive psychiatric treatment aimed at prompt discharge. The average length of stay was 54 days per patient This hospital served as a stringent control for the experiment because it had a high staff-to-patient ratio and its treatments were considered progressive. It further held a three year accreditation from the Canadian Council of Health Facilities Accreditation.

The CSs were admitted to a designated unit in the psychiatric facility. After assessment by the psychiatrist, the patient was given treatment which varied from person to person, but consisted of psychiatric medication and a variety of occupational and recreational therapies ranging from exercises to group participation and individual psychotherapy. The patient was conferenced weekly and when overt symptoms subsided, the patient was placed and/or discharged to the community. The patient might be referred for aftercare to an existing agency; however, he could refuse to contact the agency. If the patient did not contact the agency, the community agencies were not obliged to make any effort to engage the patient in therapy. It has been estimated that only 5% of all patients discharged (1100 a year)from the study institution were referred for aftercare (de Cangas & Flor-Henry, 1989).

Data Collection Procedures

All data were collected by three research assistants who received a month's training in the use of the measuring instruments. The training consisted of demonstrations regarding the use of the instruments and practice in using them. This practice was carried out using patients who met study criteria but not included in the study. Interrater reliability using a percentage of agreement technique among the research assistants on the instruments was obtained on five patients who met the study's inclusion criteria but were not used as subjects for the study. Their level of agreement was high (92%). The research assistants were not allowed to commence collecting and assessing data unless and until they reached a level of agreement of 90% or better in the use of the measuring instruments.

All instruments were administered by the research assistants who were unaware of the group to which the patient belonged. It is acknowledged, however, that the research assistants may have been aware of the control and experimental subjects by the mere fact of the treatment and treatment team for the patients as the differences in aftercare. Administration of the instruments took about three hours. Previous studies (Dimirsky, 1986) have shown that subjects tolerated this process well with no loss of reliability and validity.

Experimental group subjects were not difficult to trace as they were closely followed by the TCL staff. Control subjects were contacted weekly by telephone by the research assistants in order to ensure availability and ease future contacts. Recidivism and admissions to hospital data were readily available to the researcher from the clinical records department of the study institution.

Cognitive impairment was measured as an independent variable in order to ascertain the similarity among groups. This was accomplished by the integration in the data analysis of the results of the Wechsler Adult Intelligence Test vocabulary, comprehension, block design and digit symbol subscales. These tests were routine for all patients admitted to the hospital and readily available to the researcher.

Pre-test

Baseline assessment data were gathered on all patients upon admission and at discharge from hospital using the following instruments:

1) Wechsler Adult Intelligence Test (WAIS).
2) Rehabilitation Scale Baker and Hall (REHAB).
3) Short Clinical Rating Scale (SCRS).

The rationale for the test was to find out the comparability and stability cf the sample regarding cognitive impairment, symptomatology and social functioning.

Post-Test

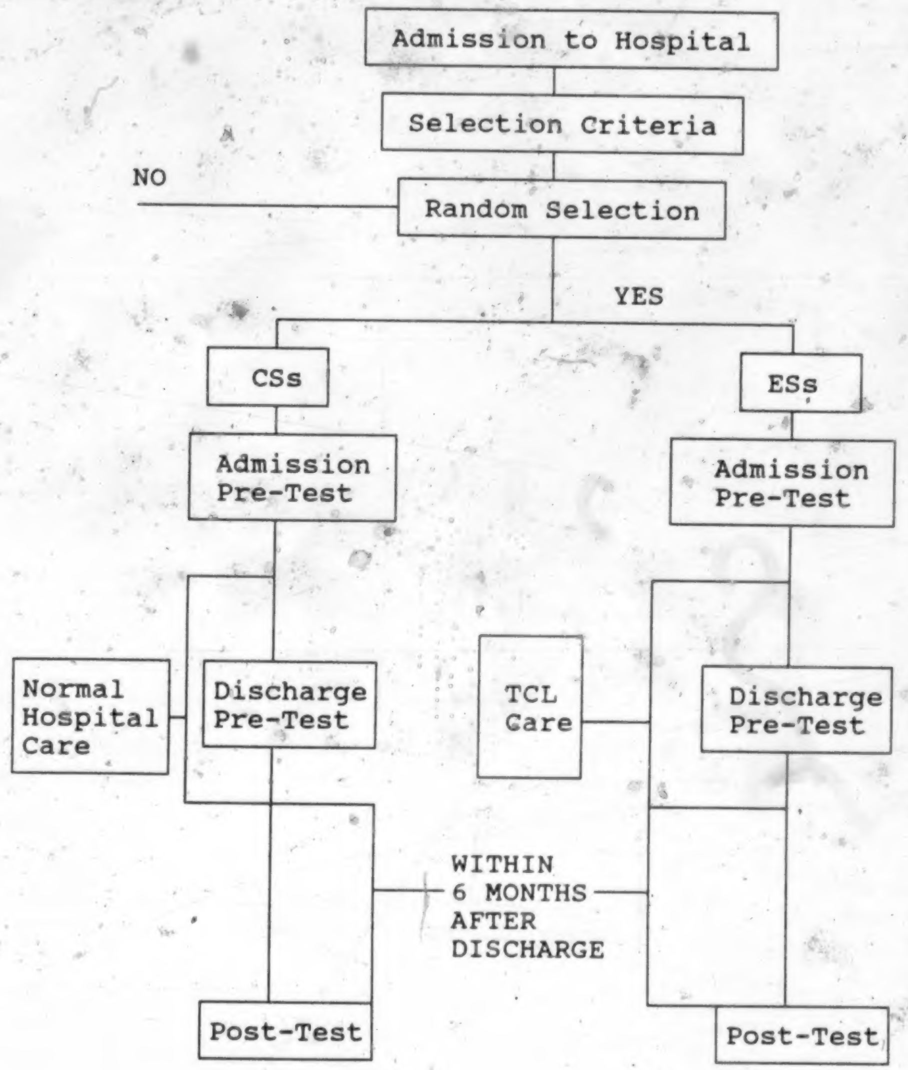
Data were gathered on all subjects six months after discharge using the following:

1) SCRS
2) REHAB
3) Oregon Quality of Life Inventory OQULI)
4) Number of times admitted to hospital six months after discharge (Recidivism).
5) Number of days spent in hospital six months after discharge (Length of Stay).
6) Family Burden Scale (FBS).
7) Expressed emotion using the Five Minute Speech Sample (FMSS).
8) Costs and benefits to society six months after discharge.

Figure II depicts graphically the data collection sequence:

Figure II

Pre-test, post-test sequence of data collection


Admission to Hospital
Selection Criteria
NO
Random Selection
YES
CSs
ESs
Admission Pre-Test
Admission Pre-Test
Normal Hospital Care
Discharge Pre-Test
TCL Care
Discharge Pre-Test
WITHIN 6 MONTHS AFTER DISCHARGE
Post-Test
Post-Test

Instruments

Rehabilitation Scale

The REHAB scale (Baker & Hall, 1983) was designed to assess institutionalized patients' deviant and general behaviours. It consists of 23 items to be completed by the research assistants. Ratings were based on behaviours that occurred during the week before evaluation. The seven deviant behaviour items measure the frequency of occurrence of "difficult or embarrassing" behaviours such as physical abuse, verbal abuse, self mutilation, sexual offensiveness, and talking or laughing to oneself. Three-point response scales are used to rate each item, and scores are combined to yield data about a total deviant behaviour score. The 15 general behaviour items measure speech characteristics (four items), social interaction (three items), engagement in spare time activities, activity level, table manners, personal hygiene, grooming, care of personal belongings, caring for own personal needs, managing money and using public facilities.

Each item is rated by making a mark along a 4.25 inch line defined at the left by the worst possible performance, at the right by performance that would be considered "appropriate" for independent living and community social adjustment, and in the middle by moderately inappropriate performance. The scores are obtained using a marked template which measures along the line in a predetermined fashion. Scores on the items are combined to yield totals for five scales derived from factor analysis: social activity, speech disturbance, community adjustment skills, self-care skills and general behaviour which includes the rating given to the twenty third item, the overall functioning item.

The reliability and validity of REHAB have been thoroughly investigated since it was first developed as part of a seven year study of the effectiveness of behaviourially-based treatment methods with chronic psychiatric patients. Baker and Hall (1983) report three separate validity studies of the scale. The first compared the scale with Wing's (1961) Ward Behaviour rating scale. The correlation between both scales was + 0.72. The second validity study compared the REHAB scale with an unstandardised rating which consisted of 17 basic skills and 15 social skill items. The correlation between the REHAB and the unstandardised scale was + 0.93. The third study used the Peabody Picture Vocabulary Test (Dunn, 1959). A psychiatrist separately interviewed the patients using Hamilton et al (1960) modification of the Lorr scale. A research nurse also interviewed the patients and the nurse in charge of the ward in order to complete the scales ratings. The scales correlated + 0.93. Thus this scale has concurrent validity. Face validity was tested with nursing personnel and the nurses who use the scale were of the opinion that the scale was valid. The researchers reported that the interrater reliability of each item ranged from .61 to .92 based on independent ratings of 47 patients. Other studies have confirmed these results. (Iljon-Foreman & Baker, 1986). The research assistants collected this data from the control and experimental groups by eliciting pertinent information from the patient's clinicians, nurses, family, and important others, if available, within 20 days of admission and six months after discharge.

Short Clinical Rating Scale

The Short Clinical Rating Scale (SCRS) consists of 13 items. The scale was designed for use in acute psychiatric facilities. It consists of 13 items which rate psychopathology in a global, clinical manner from 0 to 8 according to criteria governing specified degrees of severity. The scale is designed to be used easily and rapidly by all nursing personnel. Rating data are straightforward and can be analyzed as obtained.

The intraclass correlation coefficients for paired ratings have been reported as ranging from .61 and .90 respectively (Henninger, French, Slavinky, Davis & Mueller, 1970). The researchers also reported that the scale correlated significantly with the Brief Psychiatric Scale (the precursor of the Diagnostic and Statistical Manual III) and the Ward Behaviour Rating Scale. In addition, correlations between psychiatrist and nurse ratings were from .87 to .90. This scale demonstrates specific construct validity since only anxiety ratings correlated significantly with serum free fatty acid concentrations, a well known and recognized biochemical correlate of psychopathology (Cardon & Gordon, 1959). The SCRS was administered by the research assistants on admission and discharge to both the control and the experimental group subjects. The research assistants administered the SCRS to the control and experimental groups after an interview with the patient, clinicians, nurses, and important others, as appropriate sixth months after discharge.

Oregon Quality of Life Inventory

The Oregon Quality of Life Inventory (OQLI), also known as the Lehman's Quality of Life Scale, is predicated on needs-based theory. It assumes that people act in order to meet needs and that, to the degree their needs are met, they will report being happy and satisfied; hence, it is also deemed to be a measure of patient satisfaction. Needs satisfaction is assumed under this theory to occur as a function of the individual's perception of his needs and the perception that they have opportunities available to meet those needs.

Lehman's Quality of Life Scale consists of 317 items grouped into both global and domain specific ratings. Nearly all questions are rated on a seven-point scale covering the range " delighted-terrible". The scale takes the form of a ladder, with end points of delighted and terrible. The respondent or the interviewer places an estimate of quality of life on a point in the ladder. The internal consistency coefficients for the eight domain specific scales have been reported as being between .74 and .87. (Dimirsky, 1986). In each domain, the ratings of satisfaction correlated with all the global measures. The only domain ratings that were not related to the global measures were those in the work area. When compared with the Short Symptom Rating Scale, the internal consistency score for each of the scales was .85 and .77 respectively. They were also correlated (r=.51) and the difference score reliability was reported to be .61. This points out that there may be two correlated, but separate, constructs: global quality of life and general mental health. Dimirsky (1986) reported item reliability of the Lehman Quality of Life Scale ranging between .65 and .95. The validity of the scale has been corroborated and reported upon by Dimirsky (1986) who concluded that the instrument had face, construct and concurrent validity. Data, using OQLI, were collected by the research assistants for both the control and experimental groups at six months after discharge.

Cost Analysis

Treatment cost/benefits were estimated using the guidelines specified by the operational definition of the term. This information was easily obtainable by tracking patient tenure in either the hospital or the community during the study period. The research assistants elicited this information by contacting the patient monthly.

The approach taken to measure costs and benefits was a "societal" approach; that is, an attempt was made to identify and measure all forms of favourable effects (benefits) and all forms of unfavourable effects (costs). Thus a value was ascribed to each category of costs and benefits and both were compared. Stein (1988) maintains that a different perspective would have implied a different form of analysis, but it would have failed to obtain a true picture of the effectiveness of the program versus its expenditures and revenues in the community and societal sense. An analysis that does not take into account the earnings of the patients being treated by the program as a benefit would be of little use for policy and program planning Stein (1988). Without a true and comprehensive sense of the true economic costs and benefits of a program policy, decisions are not conducive to appropriate outcomes (Weisbrod, Test & Stein, 1980). Unless treatment costs are defined comprehensively, one treatment mode may falsely appear to cost less than another because costs have been shifted into forms that have not been measured. For example, we would see that per diem costs of the TCL patients are less than 14% of the cost of patients treated in a psychiatric facility. However, in the above comparisons, costs of utilization of social service and other community agencies are not taken into account. In effect, such an approach masks the true costs to society.

Maintenance costs were regarded as equivalent to and additive to other types of costs because they involved the use of real resources on behalf of patients. Maintenance payments involve the use of resources by transferring money from one group of people to another (taxpayers to persons needing the maintenance payments). It may be true that maintenance costs would be incurred at some positive level with either treatment mode. As a result, an accounting of such costs would add to the cost levied to both the (ESs) and (CSs) groups, but would not have any effect on the cost differential between the groups. However, the matter is not a simple one. One reason is that if the actual levels of maintenance were not equal for the groups under study, then it may be asked : "Is the fact that one treatment mode requires a patient to live less independently (due to the receipt of more maintenance payments) to be regarded as a benefit of social cost reduction?" Another reason is that, to some extent, increased maintenance costs are crucial part of the (ESs) patients therapy. By placing patients in independent living conditions additional living costs were incurred.

Problems in measurement are therefore highlighted by the attempt to provide an all-inclusive framework which accounted for all costs and benefits derived from treatment patients received. The issues involved in accounting are complex and involve both conceptual and measurement problems. The previous rationale was used to guide this part of the study's measurement in an attempt to clarify the above discussed issues.

Economic benefit-cost analysis of the study was derived by developing estimates of each item. Direct costs of hospital treatment were derived from the psychiatric facility's annual report (AHE annual report, 1988)and the Provincial Government Ministry of Health (Alberta Health, 1989). This process accounts for: 1) operating costs, 2) costs of capital in the form of buildings and equipment (the reports take into account depreciation based on market values) and, 3) staff costs (these are also available in the above documents). This cost was multiplied by the number of days of hospitalization for the experimental and control groups. The TCL cost was derived similarly from the same documents. This cost was multiplied by the number of days the patient received the TCL treatment. Other costs were readily available and standardized for all residents of the study's province of residence. Indirect treatment costs and the costs of contacts with the law enforcement system were products of the data gathered from patient and family interviews and from the agency as estimated by the agencies. Maintenance costs were derived similarly from the agencies involved but, when this was not possible, report of patients and their caregivers of agency contacts together with agencies' own cost data were used.

Benefit costs were obtained by estimating patients' earnings as reported by the patients. Ethical considerations prevented verification with the employers. On the benefit side, data on sheltered workshops was readily and universally available.

Family Burden Scale and Expressed Emotion Scale

Family and community burden were assessed by means of the Family Burden Scale (FBS), and the Expressed Emotion Scale (EES) which measured the objective and subjective dimensions of burden, respectively. The Family Burden Scale is composed of 37 objective questions that assess the amount of disruption in the household of the significant other that was precipitated by the patient in the areas of employment (days missing from work), school attendance (days missed), social and leisure time activities (number of hours disrupted), household and domestic routine (number of times disrupted), and relationships with neighbours (number of times difficulty was experienced). Grad and Sainsbury (1968) claimed satisfactory validity and reliability, but they failed to produce empirical evidence. The authors have argued that the internal and item validity and reliability of the scale lie in the selection of objective measures of family and community burden. The scale has been used, however, in previous replications of the TCL program, reported in Chapter I. The original Wisconsin TCL research group has used the scale in the replication and considered it as both valid and reliable (M.A. Test, personal communication, August 5, 1987).

Five Minute Speech Sample

The Five Minute Speech Sample (FMSS) measures the attitudes and feelings that a relative expresses about a mentally ill family member. This construct has been termed expressed emotion (EE) and is assumed to be a subjective dimensions of family burden. Specifically, five areas of perceived burden: **Critical comments** about the ill relative, **hostility towards** the patient, **emotional overinvolvement**, **warmth towards** the patient and **positive remarks** about the affected relative. Borderline cases are also measured. The original EE scale was developed by Brown (1985). The author has reported that the scale has high convergent and discriminant validity but has stated that the scale is mainly inductive and measures something about perceived family relationships. The aspect of perceived subjective burden has not been previously measured in outcome studies of TCL, and while it has been acknowledged here that it is a difficult and troublesome area of measurement, it was felt that it was an important variable of family burden that should be measured (Test personal communication, August 5, 1987). The FMSS is derived from the original EE scale and uses a variation of the five minute speech sample instrument, originally developed by Gottschalk and Gleser (1969). The measure is obtained from the responses made by the patient's important other (the patient's relative or close friend, such as a foster home or approved home operator) when asked to express thoughts and feelings about the patient for a five minute period.

The coding system developed at the University of Los Angeles, Family Project by Magaña and colleagues (1986), is analogous to that of EE. The authors reported a modest correlation between FMSS and the original EE scales (Pearson r = 0.44). The data were obtained by the research assistants who asked the patient's important other to speak feelings about the patient for five minutes. The score is obtained by analyzing the speech sample following a pre-established criterion, administered by a researcher who received a week's training from the Family Project group, University of California at Los Angeles. The course was conducted by the original FMSS developers and this researcher obtained a 94% (Kappa statistic) reliability rate.

The validity and reliability of the cognitive impairment measures used to control for this independent variable are well documented in the literature. For the current project, the tests were administered by a psychologist holding a doctoral degree with many years of experience.

Recidivism and Length of Hospital Stay

Recidivism and length of stay rates referred to the number of admissions and number of days in hospital of all subjects after they were discharged from the hospital in the pre-test stage of the study. The data were collected by checking the number of admissions to hospital of all subjects within six months after discharge. This information was readily available from hospital records. Recidivism and length of stay data are objective measures of time and activity and, thus, are assumed to be valid and reliable.

Data Analysis

The distribution of the all test scores was examined prior to data analysis to ascertain the assumption of comparability of groups. Means and standard deviations are reported for all variables. When means and standard deviation are not meaningful frequencies are reported. Likewise medians are reported if the distribution of a score dispersion warrants it. The overall summary for the each group as determined by the scores obtained by the measuring tools were the central interest of this study. Thus descriptive statistics were employed at this level of the analysis.

The experimental condition dictated the number of subjects available for the study, as the TCL program implemented as part of the study was the only one in Canada. The aim of the study was to have 120 subjects, 60 in the experimental group and 60 in the control group, however only forty-three experimental subjects were available for the study, and forty-two subjects were obtained from the control group.

Means were compared using Student t-tests on all variables for which the level of the data could be described as ordinal or interval. Analysis of covariance (ANCOVA) was employed to control for the effect of symptomatology prior to the institution of TCL treatment and test the comparability of the groups. Chi-Square was used for nominal variables and included recidivism and, social functioning; as well, it was used for the analysis of length of stay. Level of significance for hypothesis testing was set at 0.05.

CHAPTER IV

RESULTS

The reported results are based on a total of 85 subjects; 43 experimental and 42 control. Originally, the sample size total was expected to be 120 subjects, 60 randomly assigned experimental and 60 control subjects. The special nature and clinical features of the TCL program resulted in the reduced size of the final groups. The loss of subjects occurred for a variety of reasons including difficulty in obtaining the scheduled follow-up interview because of subject refusal, non-availability of the subject or lack of cooperation. The subsequent analysis, discussion and table presentation reflect the groups as identified above.

In Table II the demographic characteristics of the sample are presented.

Table II

Demographic Characteristics of the Sample by Group

Characteristics		E (n=43)	C(n=42)
SEX	Male	30	25
	Female	13	17
MARITAL STATUS	Single	32	32
	Married	5	7
	Separated	5	1
	Divorced	1	2
PLACE OF BIRTH	Alberta	31	21
	Canada	9	15
	Other	3	6
YEARLY INCOME	$0000-$0499	23	11
	$0500-$0999	8	24
	>$1000	12	7
EMPLOYED LAST YEAR (at admission to hospital)	YES	19	15
	NO	24	27
EDUCATION	No High School	12	13
	High School	24	23
	Vocational	6	4
	University	1	2

Eighty six percent of all subjects were either single, separated, or divorced; 65% were male and 35% were female. Their demographic characteristics were within the normal limits for this population (Test & Stein, 1980). The experimental group was composed of 70% males and 30% females, while the control group had a composition of 60% males and 40% females. This slight difference in sex composition was not considered to be a significant problem. This distribution is consistent with the distribution of chronically mentally ill people in the general population (Bland, 1988). The distribution of the other demographic variables is also consistent with the expected distribution for this kind of population (Mulkern & Manderscheid, 1989; Stein & Test, 1980).

Pre-Test Measures

Stability and Comparability of the Sample

The Wechsler Adult Intelligence (IQ) Test Battery was employed to measure patients' cognitive abilities. The major reason for administering this test battery was to identify the stability and comparability of the sample. Although the subjects accepted for the study had to meet strict criteria for inclusion, measurement of their cognitive stability was important in order to ascertain comparability between control and experimental groups.

The subjects' cognitive test scores were consistent with those reported in the literature for this population

(Flor-Henry, 1983). This data was collected for 47 subjects (55.29% of the total sample). Table III reports the t-statistic with the cognitive test scores (IQ).

Table III

Means, Standard Deviations and Student t-Statistic of Cognitive Test Scores

	Category	E (n=29) Verbal IQ	C (n=18) Verbal IQ
Group-Verbal IQ	Minimum	67.00	68.00
	Maximum	114.00	118.00
	Mean	88.13	88.17
	SD	12.53	11.62
Standard Deviation estimate based on Pooled Variance		12.086	
	t-Statistic	1.32	
Group Performance IQ	Minimum	68.00	62.00
	Maximum	118.00	115.00
	Mean	88.17	80.33
	SD	11.62	12.12
Standard Deviation estimate based on Pooled Variance		11.82	
	t-Statistic	2.21*	
Group-Full Scale IQ	Minimum	69.00	64.00
	Maximum	118.00	115.00
	Mean	87.03	80.66
	SD	12.07	11.45
Standard Deviation estimate based on Pooled Variance		12.12	
	t-Statistic	1.79	

* $p < 0.05$, df=45

The results of independent t-tests indicate that only performance IQ scores were significant at alpha = 0.05. As the Bartlett Test for homogeneity of group variances was not significant, the assumption of homogeneity of variance was made here. Results of pooled variance were used. However, because of missing cases, the results of these tests did not provide conclusive evidence that the two groups were equivalent. Alternatively, it might suggest that missing cases do not introduce bias as far as IQ scores are concerned. Further, the IQ tests were administered when the subjects were "testable", that is, when their behaviour allowed for testing. Frequently, the subjects were not tested until 10-15 days after admission and had been receiving treatment over the course of that time. This clinical intervention may have resulted in more rational and responsive behaviour of the subjects at the time of testing and, thus, may account for the variation.

Symptomatology

SCRS data shows that the groups were not comparable on several of the measured symptoms. Table IV shows that the number and severity of symptoms were not comparable between groups on anxiety or fear, paranoid behaviour, hallucinations, hyperactivity/elation-energy level, physical complaints or the global illness scale when tested at admission.

Table IV

Means, Standard Deviations and Student t-Tests from the Items of the SCRS by Group at Admission Time

Item		E (n=43)	C (n=42)	t- Statistic
Depressed Mood	Mean	2.93	2.28	
	SD	2.19	1.50	1.61
Suicidal Trends	Mean	2.18	1.66	
	SD	1.73	1.52	1.46
Anxiety or Fear	Mean	3.90	2.52	
	SD	1.95	1.40	3.74*
Expression of Anger	Mean	2.37	1.85	
	SD	1.81	1.49	1.42
Social Withdrawal	Mean	2.74	2.04	
	SD	2.26	1.43	1.68
Motor Agitation	Mean	1.86	1.23	
	SD	1.87	1.32	1.76
Motor Retardation	Mean	1.20	1.09	
	SD	1.52	1.41	0.35
Paranoid Behaviour	Mean	2.88	1.23	
	SD	2.36	1.39	3.90*
Hallucinations	Mean	2.13	1.19	
	SD	2.06	1.40	2.47*
Thought Disorder	Mean	1.81	1.42	
	SD	1.94	1.48	1.02
Hyperactivity/ Elation MOOD	Mean	1.53	1.09	
	SD	1.89	1.18	1.27

(cont'd)

Table IV (cont'd)

Hyperactivity/ Elation Energy Level	Mean	1.81	1.14	
	SD	1.73	1.18	2.08*
Hyperactivity/ Elation Though-Speech Pressure	Mean	1.81	1.04	
	SD	2.08	1.22	1.04
Physical Complaints	Mean	2.37	1.33	
	SD	1.86	1.37	2.91*
GLOBAL ILLNESS	Mean	3.76	3.02	
	SD	1.52	1.13	2.54*

* $p < 0.05$, df=83

At discharge (Table V), the groups showed differences on more of the rated symptoms: anxiety or fear, expression of anger, social withdrawal, paranoid behaviour, hallucinations, thought disorder, hyperactivity/elation/mood, hyperactivity/elation-energy level, physical complaints and the global illness scale. The higher scores exhibited by the experimental group subjects at both admission and discharge suggest that the experimental subjects were generally more ill than the control subjects at those two testing periods. The direction of the scores towards the higher end of the scale and more severe symptomatology also suggests that the groups may not have been comparable in relation to their symptoms. Although random assignment was employed, the results on the SCRS may have been influenced by preexisting differences in the comparison groups or by bias introduced by the testers.

Again, the time of testing confounds this set of measures to a degree. At admission, the subjects were not tested until they were "settled" or "testable": approximately 10-15 days after admission on the average. Thus, subject symptomatology was influenced by treatment prior to the time of testing. The differences in subjects' responses to treatment and in treatment approaches might account for the disparity in the SCRS scores. Analysis of covariance was calculated using pretest scores as the covariate.

Table V

Means, Standard Deviations and Student t-Tests from the Items of the SCRS by Group at Discharge Time

Item		E (n=43)	C (n=42)	t-Statistic
Depressed Mood	Mean	2.41	1.90	
	SD	1.93	1.70	1.29
Suicidal Trends	Mean	1.67	1.61	
	SD	1.62	1.60	0.15
Anxiety or Fear	Mean	3.16	1.71	
	SD	1.81	1.50	4.00*
Expression of Anger	Mean	2.41	1.00	
	SD	1.82	1.26	4.14*
Social Withdrawal	Mean	2.27	1.38	
	SD	2.20	1.56	2.16*
Motor Agitation	Mean	1.30	0.85	
	SD	1.68	1.40	1.32
Motor Retardation	Mean	1.53	0.95	
	SD	1.68	1.10	1.88
Paranoid Behaviour	Mean	2.39	0.76	
	SD	2.23	1.16	4.20*
Hallucinations	Mean	1.76	0.90	
	SD	2.10	1.10	2.36*
Thought Disorder	Mean	1.76	0.76	
	SD	2.01	0.98	2.91*
Hyperactivity/ Elation MOOD	Mean	1.39	0.57	
	SD	1.77	1.01	2.61*

(cont'd)

Table V (cont'd)

Hyperactivity/ Elation Energy Level	Mean	1.34	0.66	
	SD	1.67	1.14	2.19*
Hyperactivity/ Elation Though-Speech Pressure	Mean	1.44	0.57	
	SD	1.76	1.10	2.71
Physical Complaints	Mean	1.95	1.19	
	SD	1.92	1.17	2.19*
GLOBAL ILLNESS	Mean	1.72	2.16	
	SD	1.03	0.88	4.63*

* $p < 0.05$, df=83

The pre-test data shows that the groups may have not been comparable regarding severity and number of symptoms. While the lack of comparability was noted on 6 sub-scales at the outset, by the time of discharge, this had increased to encompass 10 sub-scales.

To obtain a more precise estimate of group differences and the effect of the experimental intervention, two analyses of covariance (ANCOVA) were performed (see Tables VIII and IX, respectively). The first was done using symptoms at admission as the covariate and symptoms at discharge as the dependent variable. The second was done using symptoms at admission as the covariate and symptoms within six months after discharge as the dependent variable. The intent was to control for the confounding influence of symptoms on the dependent measures and for the variance between groups. It appeared that the groups differed with respect to some attributes in the area of symptomatology. These variations could affect the dependent variables and, hence, the outcome of the study.

Social Functioning

As shown in Table VI, at admission, a larger number of experimental group subjects (88.37%) demonstrated higher incidence of deviant behaviour as measured by the aggregate score of the REHAB scale. The experimental subjects at admission were scored by the raters as having more problems with behaviours considered to be inimical to social

Table VI

Overall Percentages and Chi-Square for REHAB Scores (Social Functioning) by Group at Admission and Discharge.

TIME		E (n= 43)		C (n= 42)	
		No. of Subjects	%	No. of Subjects	%
ADMISSION	No Problem	5	11.63%	13	30.95%
	Deviant Behaviour	38	88.37%	29	69.05%
		Chi= 4.75*			
DISCHARGE	No Problem	11	25.58%	19	45.24%
	Deviant Behaviour	32	74.42%	23	54.76%
		Chi= 3.59*			

* $p < 0.05$, df= 1

functioning; these included: speech disturbance, violence, self injury, verbal aggression, talking to oneself, incontinence, passivity, lack of socialization, poor table manners, poor hygiene, inability to take care of possessions and lack of community living skills. In contrast, a lower percentage of control group subjects (69.05) was rated as exhibiting deviant behaviour at admission. The differences between the groups in percentage of subjects who demonstrated deviant behaviour indicated that a lower number of control subjects, at admission, were found to have "socially embarrassing" behaviour and, thus, their social functioning was rated as higher.

The Chi-square results indicated a significant difference in social functioning between the control and experimental group subjects, both at admission and discharge. This result is in accordance with the previous finding (see Tables IV and V) where the control group subjects exhibited less severe symptoms than the experimental group subjects. It may be that severity of symptomatology had an effect on social functioning and may explain the above results. Conversely, it can be argued that the raters may have perceived that the experimental subjects demonstrated deviant behaviour due to the severity of their symptoms rather than the social functioning levels of the subjects. As the REHAB scale is based on the conclusion that social functioning is not highly correlated with behavioral deficits or social withdrawal (Wing 1961), the influence of symptomatology in the rating of the control subjects was quite possibly, not a factor.

At discharge, 54.76% of the control subjects, as compared to 74.42% of the experimental subjects, were demonstrating deviant behaviour. Similar indicators of improvement were found in both groups. At discharge approximately 14% of the subjects in both the experimental and control groups were reclassified from the deviant behaviour to the no problem category. It appears that, as has been found in previous studies (Liberman, 1986; Test & Stein, 1980), inpatient treatment and hospital stay are not conducive to the acquisition of social skills. Those previous findings would seem to be reinforced by this study. Results at time of discharge also showed a higher proportion of the experimental subjects with both greater severity of symptoms and more deviant behaviour than the control group subjects. Theoretically, these differences indicated that the control group subjects should have functioned better in the social sphere in the community. Such was not the case. The differences in social functioning were not sufficient to warrant doubt about the stability and comparability of the groups, but rather those differences may have illustrated the effectiveness of the TCL condition regarding social learning in the community.

Post-Test Measures

Post-test measures taken six months after discharge showed that, across tests, the experimental subjects did better than the control group subjects. The measures included: recidivism, symptomatology, social functioning, quality of life, costs and family burden.

Hypothesis one

> Patients who are treated with TCL will show lower recidivism rates than patients who do not receive this treatment in the six months following discharge.

Recidivism and Length of Hospital Stay

Hypothesis one was supported. In the six months post discharge period, control subjects spent considerably more time in hospital than experimental group subjects (see Table VII). The control group patients were also admitted to hospital more often than the experimental group patients. This difference was found to be statistically significant as measured by the statistic Chi-square (see Table VII). There was also a significant difference in length of hospital stay between the groups measured again by the Chi-Square statistic (see Table VII).

Table VII

Frequencies and Chi-Square Analysis of the Number of Psychiatric Hospitalizations and Length of Stay by Group in the Six Months after Discharge

A) Number of Psychiatric Hospital Admissions by Group

Number of Admissions to Hospital	Experimental (n=43)	Control (n=42)
0	32	11
1	5	18
>2	6	13

Chi= 20.17*

* $p < 0.05$, df=2

(cont'd)

Table VII (cont'd)

Frequencies and Chi-Square Analysis of Length of Stay by Group in the Six Months after Discharge Period

B) Length of Psychiatric Hospital Stay by Group in Days

Length of Hospital Stay in days	Experimental (n=43)	Control (n=42)
0 - 4	32	11
5 - 25	5	8
> 26	6	23

Chi= 20.90*

*p < 0.05, df=2

Hypothesis two

> Patients who are treated with TCL will experience fewer psychiatric symptoms, as measured by the Short Clinical Rating Scale, than patients who do not receive this treatment in the six months following discharge.

Symptomatology

Hypothesis two was also supported by the data. The first analysis of covariance test in which admission symptomatology was the covariate and discharge symptoms (see Table VIII) the dependent variable showed that anxiety or fear, expression of anger, paranoid behaviour, thought disorder, hyperactivity/elation/mood and, global illness symptoms were significant at discharge. It was found, at six months after discharge controlling for admission symptoms (admission effect), that all symptoms were statistically significant (see Table IX). The groups were observed to differ significantly even after removing the effect of symptoms at admission.

This effect can be attributed to the effect of the TCL treatment condition. The effects of the TCL treatment can be judged to be responsible for the significant difference in symptomatology between the experimental and control groups.

At six months after discharge, experimental subjects showed substantially less symptomatology than control subjects, based on analysis of covariance (see Table IX).

Table VIII

Summary for SCRS ANCOVA with Time of Admission as the Covariate and Time of Discharge as the Dependent Measure

Depressed Mood

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.93	2.28	2.41	1.90
Adjusted Means			2.33	1.98

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	2.50	1	2.50	0.80
Admission Effect	21.93	1	21.93	7.07**
Residual	257.32	82	3.10	
Total	281.76	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Suicidal Trends

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.18	1.66	1.67	1.61
Adjusted Means			1.55	1.73

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	0.69	1	0.69	0.33
Admission Effect	45.60	1	45.60	22.12**
Residual	171.11	82	2.06	
Total	217.41	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Anxiety or Fear

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	3.90	2.52	3.16	1.71
Adjusted Means			2.98	1.89

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	21.64	1	21.64	8.39*
Admission Effect	39.96	1	39.96	15.50**
Residual	275.50	82	3.31	
Total	213.93	84		

*..) $p < 0.05$

(cont'd)

Table VIII (cont'd)

Expression of Anger

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.37	1.85	2.41	1.00
Adjusted Means			2.28	1.12

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	28.29	1	28.20	15.76*
Admission Effect	73.06	1	73.06	40.85**
Residual	148.45	82	1.78	
Total	249.73	84		

$^{*}_{**})p < 0.05$

(cont'd)

Table VIII (cont'd)

Social Withdrawal

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	DISCHARGE Experimental (n=43)	DISCHARGE Control (n=42)
Unadjusted Means	2.74	2.04	2.27	1.38
Adjusted Means			2.08	1.57

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	5.35	1	5.35	2.11
Admission Effect	106.38	1	106.38	42.01**
Residual	210.15	82	2.53	
Total	321.89	84		

**p < 0.05

(cont'd)

Table VIII (cont'd)

Motor Agitation

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	DISCHARGE Experimental (n=43)	DISCHARGE Control (n=42)
Unadjusted Means	1.86	1.23	1.30	0.85
Adjusted Means			1.13	1.02

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	0.23	1	0.23	0.14
Admission Effect	69.01	1	69.01	42.36**
Residual	135.22	82	1.62	
Total	204.47	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Motor Retardation

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.20	1.09	1.53	0.95
Adjusted Means			1.51	0.97

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	6.41	1	6.41	3.52
Admission Effect	18.66	1	18.66	10.27**
Residual	150.82	82	1.81	
Total	175.89	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Paranoid Behaviour

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.88	1.23	2.39	0.76
Adjusted Means			1.97	1.17

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	11.56	1	11.56	5.18*
Admission Effect	126.66	1	126.66	56.82**
Residual	185.03	82	2.22	
Total	323.26	84		

$\left.\begin{matrix}*\\**\end{matrix}\right)p < 0.05$

(cont'd)

Table VIII (cont'd)

Hallucinations

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.13	1.19	1.76	0.90
Adjusted Means			1.46	1.21

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	1.23	1	1.23	0.80
Admission Effect	123.67	1	123.67	81.22**
Residual	126.38	82	1.52	
Total	251.29	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Thought Disorder

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.81	1.42	1.76	0.76
Adjusted Means			1.64	0.88

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	12.56	1	12.56	8.99*
Admission Effect	102.55	1	102.55	73.43**
Residual	115.91	82	1.39	
Total	231.03	84		

***)$p < 0.05$

(cont'd)

Table VIII (cont'd)

Hyperactivity/ Elation-Mood

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.53	1.09	1.39	0.57
Adjusted Means			1.29	0.67

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	8.26	1	8.26	5.18*
Admission Effect	48.40	1	48.40	30.32**
Residual	132.48	82	1.59	
Total	189.16	84	–	

*,**)p < 0.05

(cont'd)

Table VIII (cont'd)

Hyperactivity/ Elation-Energy Level

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.81	1.14	1.34	0.66
Adjusted Means			1.20	0.81

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	3.17	1	3.17	1.91
Admission Effect	40.63	1	40.63	24.56**
Residual	137.29	82	1.65	
Total	181.10	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Hyperactivity/ Elation-Thought-Speech Pressure

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.81	1.04	1.44	0.57
Adjusted Means			1.26	0.74

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	5.48	1	5.48	3.54
Admission Effect	63.48	1	63.48	41.09**
Residual	128.21	82	1.54	
Total	197.18	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

Physical Complaints

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.37	1.33	1.95	1.19
Adjusted Means			1.68	1.45

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	1.05	1	1.05	0.56
Admission Effect	69.72	1	69.72	37.57**
Residual	154.12	82	1.85	
Total	224.90	84		

**$p < 0.05$

(cont'd)

Table VIII (cont'd)

GLOBAL ILLNESS

Within Sample descriptive statistics

	ADMISSION		DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	3.76	3.02	3.39	2.16
Adjusted Means			3.30	2.25

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	22.05	1	22.05	15.83*
Admission Effect	18.90	1	18.90	13.57**
Residual	115.61	82	1.39	
Total	156.57	84		

* **)p < 0.05

Table IX

Summary for SCRS ANCOVA with Time of Admission as the Covariate and within Six Months after Discharge as the Dependent Measure

Depressed Mood

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.93	2.28	1.30	3.28
Adjusted Means			1.16	3.42

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	105.67	1	105.67	42.76*
Admission Effect	27.47	1	27.47	11.11**
Residual	205.07	82	2.47	
Total	338.21	84		

* **)p < 0.05

(cont'd)

Table IX (cont'd)

Suicidal Trends

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.18	1.66	0.69	3.00
Adjusted Means			0.59	3.10

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	131.93	1	131.93	53.20*
Admission Effect	17.27	1	17.27	6.96**
Residual	205.82	82	2.47	
Total	355.03	84		

***)$p < 0.05$

(cont'd)

Table IX (cont'd)

Anxiety or Fear

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	3.90	2.52	1.58	3.23
Adjusted Means			1.39	3.41

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	74.90	1	74.90	22.56*
Admission Effect	0.67	1	0.67	0.20
Residual	275.50	82	3.31	
Total	351.09	84		

*$p < 0.05$

(cont'd)

Table IX (cont'd)

Expression of Anger

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.37	1.85	1.16	2.04
Adjusted Means			1.07	2.13

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	23.94	1	23.94	15.44*
Admission Effect	21.99	1	21.99	14.19**
Residual	128.59	82	1.55	
Total	174.59	84		

* **}$p < 0.05$

(cont'd)

Table IX (cont'd)

Social Withdrawal

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	WITHIN SIX MONTHS AFTER DISCHARGE Experimental (n=43)	WITHIN SIX MONTHS AFTER DISCHARGE Control (n=42)
Unadjusted Means	2.74	2.04	1.20	2.71
Adjusted Means			1.08	2.83

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	64.02	1	64.02	20.05*
Admission Effect	23.45	1	23.45	7.34**
Residual	264.91	82	3.19	
Total	352.38	84		

*,**)$p < 0.05$

(cont'd)

Table IX (cont'd)

Motor Agitation

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.86	1.23	0.55	1.95
Adjusted Means			0.45	2.05

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	52.55	1	52.55	20.94*
Admission Effect	11.52	1	11.52	4.59**
Residual	208.22	82	2.50	
Total	272.30	84		

* **)p < 0.05

(cont'd)

Table IX (cont'd)

Motor Retardation

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	WITHIN SIX MONTHS AFTER DISCHARGE Experimental (n=43)	WITHIN SIX MONTHS AFTER DISCHARGE Control (n=42)
Unadjusted Means	1.20	1.09	0.60	1.42
Adjusted Means			0.58	1.45

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	16.31	1	16.31	10.64*
Admission Effect	29.62	1	29.62	19.32**
Residual	127.22	82	1.53	
Total	173.16	84		

*, **} $p < 0.05$

(cont'd)

Table IX (cont'd)

Paranoid Behaviour

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.88	1.23	0.93	1.23
Adjusted Means			0.73	1.43

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	9.07	1	9.07	4.28*
Admission Effect	11.48	1	11.48	5.41**
Residual	175.88	82	2.11	
Total	196.44	84		

*,**) $p < 0.05$

(cont'd)

Table IX (cont'd)

Hallucinations

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	2.13	1.19	0.37	1.33
Adjusted Means			0.24	1.46

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	29.83	1	29.83	18.77*
Admission Effect	9.50	1	9.50	5.97**
Residual	131.90	82	1.58	
Total	171.24	84		

$\left.\begin{matrix}*\\**\end{matrix}\right\} p < 0.05$

(cont'd)

Table IX (cont'd)

Thought Disorder

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	WITHIN SIX MONTHS AFTER DISCHARGE Experimental (n=43)	WITHIN SIX MONTHS AFTER DISCHARGE Control (n=42)
Unadjusted Means	1.81	1.42	0.69	1.42
Adjusted Means			0.64	1.48

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	14.83	1	14.83	11.10*
Admission Effect	15.16	1	15.16	11.35**
Residual	110.84	82	1.33	
Total	140.84	84		

*)p < 0.05

(cont'd)

Table IX (cont'd)

Hyperactivity/ Elation-Mood

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.53	1.09	0.13	1.61
Adjusted Means			0.09	1.66

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	52.16	1	52.16	72.58*
Admission Effect	4.32	1	4.32	6.02**
Residual	59.64	82	0.71	
Total	116.13	84		

* **)$p < 0.05$

(cont'd)

Table IX (cont'd)

Hyperactivity/ Elation-Energy Level

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	1.81	1.14	0.13	1.57
Adjusted Means			0.07	1.64

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	50.31	1	50.31	65.54*
Admission Effect	1.49	1	1.49	1.95
Residual	63.71	82	0.76	
Total	115.53	84		

*p < 0.05

(cont'd)

Table IX (cont'd)

Hyperactivity/ Elation-Thought-Speech Pressure

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	WITHIN SIX MONTHS AFTER DISCHARGE Experimental (n=43)	WITHIN SIX MONTHS AFTER DISCHARGE Control (n=42)
Unadjusted Means	1.81	1.04	0.13	1.61
Adjusted Means			0.68	1.68

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	53.76	1	53.76	73.64*
Admission Effect	1.77	1	1.77	2.42
Residual	60.59	82	0.73	
Total	116.13	84		

*$p < 0.05$

(cont'd)

Table IX (cont'd)

Physical Complaints

Within Sample descriptive statistics

	ADMISSION Experimental (n=43)	ADMISSION Control (n=42)	WITHIN SIX MONTHS AFTER DISCHARGE Experimental (n=43)	WITHIN SIX MONTHS AFTER DISCHARGE Control (n=42)
Unadjusted Means	2.37	1.33	0.97	2.92
Adjusted Means			0.86	3.04

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	92.28	1	92.28	30.24*
Admission Effect	0.09	1	0.09	0.03
Residual	253.28	82	3.05	
Total	345.66	84		

*$p < 0.05$

(cont'd)

Table IX (cont'd)

GLOBAL ILLNESS

Within Sample descriptive statistics

	ADMISSION		WITHIN SIX MONTHS AFTER DISCHARGE	
	Experimental (n=43)	Control (n=42)	Experimental (n=43)	Control (n=42)
Unadjusted Means	3.76	3.02	1.72	3.76
Adjusted Means			1.64	3.83

Summary Table for ANCOVA

Source of Variation	Sum of Squares	df	Mean Squares	F-ratio
Between Groups	96.11	1	96.11	62.46*
Admission Effect	0.008	1	0.008	.005
Residual	127.70	82	1.53	
Total	223.83	84		

*p < 0.05

Experimental group subjects were reported to have lower depressed mood, suicidal trends, anxiety or fear, expression of anger, social withdrawal, motor agitation, motor retardation, paranoid behaviour, hallucinations, thought disorder, hyperactivity/elation-mood, hyperactivity/elation-energy level, hyperactivity/elation-thought speech pressure, and physical complaints. They were also rated as being less symptomatic in the global illness sub-scale than the control group subjects. As was previously discussed, the experimental group subjects were more symptomatic and exhibited a higher degree of symptom severity at admission and discharge than the control group subjects. The TCL interventions received by the experimental group subjects may have been responsible for the differences in severity and number of symptoms between groups. The above is plausible because the TCL intervention is predicated on psychiatric intervention and drug compliance strategies that attempt to ensure that the patient receives and maintains drug therapy. Drug therapy is directed mainly towards maintaining the patient in a symptom free state, especially as this relates to primary symptoms: those measured by the SCRS. It is logical, therefore, to suggest that the TCL interventions were responsible for the differences in the number and severity of symptoms between the control and experimental group subjects.

Hypothesis three

> The total treatment and community maintenance cost for patients treated with TCL will not be higher than those for patients not receiving this treatment in the six months following discharge.

Cost Analysis

Previously in Chapters II and III, it was noted that for this study the analysis of costs would take the form of an identification of the costs and earnings associated with all patients in the study. Direct costs, as previously discussed, were estimated from the actual costs of treatment as taken from the annual report of the institution employed in the study. A per diem cost of $212.00 resulted.

Similarly, TCL program costs were calculated from the actual wages and capital costs of the program as reported in the annual report of the TCL program. A cost of $15.00 per diem for the experimental group resulted. Control subjects' expenditures were substantially higher than those of the experimental group. Thus, hypothesis three was supported as well. The breakdown of costs in dollars is reported in Table X.

In Appendix III, a detailed breakdown of costs and earnings by category and group is presented.

Table X

Summary of Costs and Earnings per Patient in Experimental (E) and Control (C) by Category of Cost and Benefit in Dollars and Student t-Test for Net Costs.

COSTS		E (n=43)	C (n=42)
Direct Treatment Costs	Mean	$4048	$7893
	SD	2697	7964
Indirect Treatment Costs	Mean	$880	$1738
	SD	657	1841
Legal and Law Enforcement Costs	Mean	$96	$251
	SD	418	777
Maintenance Costs	Mean	$2572	$2926
	SD	1572	1450
Family Burden Costs	Mean	$135	$58
	SD	329	327
Total Costs	Mean	$7732	$12868
	SD	3491	7649
	MEDIAN	$6285	$11217
Summary of Earnings:			
Total Earnings	Mean	$439	$178
	SD	666	474
	MEDIAN	$82	$000

(cont'd)

Table X (cont'd)

Net Costs (Costs minus Earnings):

Net Costs	Mean	$7293	$12689
	SD	3609	7792
	MEDIAN	$6285	$11105

Net Costs - t-Statistic: 4.12*

* p < .05, df=83

A Student t-test statistic indicated that there was a statistically significant difference in net cost between the groups (see Table X).

The experimental subjects' mean net costs were considerably lower than the net costs for the control subjects. The experimental group costs were $7293 compared with $12689 for the controls. Likewise, the experimental subjects' mean direct treatment costs were $4048 compared with $7893 for the control group. The mean indirect treatment costs were lower ($880) for the experimental group than the control group ($1738). Mean legal and law enforcement costs were considerably lower for the experimental group subjects than the control group subjects; that is, the former spent $96 compared with $251 for the latter. The mean costs of maintenance were $2572 as contrasted with $2926 for the control group subjects. Cost of family burden were slightly lower for the experimental than the control group - three hundred and twenty nine dollars versus $327, respectively. The experimental group subjects costs were lower in all categories (see Table X and Appendix III) except for "other services", in which the mean cost per subject was $209 for the experimental group, while the control group mean cost in this category was $3. The experimental group subjects mean total earnings was higher than the control group subjects, $439 dollars for the experimental subjects compared with $178 for control group subjects. Due to the dispersion of the scores, medians in total costs, total earnings and net costs were calculated and described. Group differences were even more pronounced when medians were used with no earnings for the control group being the median. Thirty three of the control subjects reported no earnings six months after discharge. Thus, the median for earnings in the control group was zero. Sixteen of the experimental subjects reported no income six months after discharge. Closely related to costs and influencing the total cost of maintenance in the community were costs related to the utilization of other services and agencies.

Utilization of Medical and Social Agencies

Patients in the control group utilized more community and other services than their counterparts in the experimental group. Comparisons are presented in Table XI. Particularly, the experimental group subjects utilized social services agencies 176 times compared with the control group subjects which utilized the agencies 210 times. Experimental subjects visited psychiatric clinics 276 times while their control counterparts visited the clinics 357 times. Hospitals were utilized 18 times by the experimental group subjects compared with 106 visits by the control group. Likewise, the experimental group visited medical clinics 15 times as contrasted with 57 visits by the control group. However, the experimental group utilized other services (public health, VON, etc) more often than the

Table XI

Number of Occurrences of Utilization of Medical and Social Agencies by Group

Category	Experimental (n=43) No.	Control (n=42) No.
Social Services Agencies	176	210
Psychiatric Clinic Visits	276	357
Hospitals	18	106
Medical Clinic (includes Physician & other MD visits)	15	57
Other Services	71	31

control group subjects, 71 times compared with 31 times.

Legal System Utilization

The TCL patient group utilized the legal system slightly less than the control group (Table XII). Overnight stays in jail were lower for the experimental group (1) than for the control group (5). As well, court contacts were lower for the experimental subjects. Probation and parole officers' visits were higher for subjects in the experimental than in the control group, one versus 3. The number of police arrests were lower in the experimental than in the control group. There were seven arrests for the experimental subjects compared with 23 for the control group subjects.

Table XII

Number of Occurrences of Utilization of the Legal System - Days in Jail, Court Contacts, Probation and Parole, and Arrests by Group

Category	Experimental (n=43) No.	Control (n=42) No.
Days in Jail	1	5
Court Contacts	2	3
Visits to Probation & Parole Officers	1	3
Arrests	7	23

Hypothesis four

> The reported quality of life of patients treated with TCL will be higher than that of patients not receiving this treatment, as measured by the Oregon Quality of Life Inventory in the six months following discharge.

Quality of Life

The fourth hypothesis which dealt with quality of life was supported by the results obtained after data analysis.

An examination of the results of the Student T-tests in Table XIII shows that the differences between the two groups means were statistically significant for all measures of quality of life except for religious life satisfaction, and help and counselling received with unemployment situation. The experimental group subjects reported significantly greater satisfaction with the quality of their lives in all areas of quality of life except in satisfaction with their unemployment situation counselling and religious life than the control group subjects. The lack of statistically significant differences in the area of help received with their unemployment situation may be explained by the fact that there were a low number of usable responses and that most of the experimental group subjects were employed and thus were satisfied with their employment situation. Likewise, satisfaction in the area of religious life was not statistically significant. The reason for this is unclear.

Table XIII

Quality of Life Means, Standard Deviations and Student t-Test by Category and Group

Category		E(n=**)	C(n=**)	t-Statistic
Life Satisfaction	n	43	40	2.75*
	Mean	21.81	17.77	df=81
	SD	5.26	7.93	
Living Circumstances	n	33	36	5.27*
	Mean	39.84	26.05	df=67
	SD	6.68	13.59	
Family Circumstances	n	39	41	3.42*
	Mean	14.66	10.46	df=78
	SD	4.89	5.98	
Social Life	n	36	38	5.09*
	Mean	59.11	39.68	df=72
	SD	11.71	19.84	
Leisure Activities	n	43	42	5.69*
	Mean	49.58	31.54	df=83
	SD	12.32	16.59	
Employment Circumstances	n	15	13	2.22*
	Mean	30.26	24.84	df=26
	SD	7.73	4.45	
Unemployment Situation	n	24	17	1.07
	Mean	34.50	32.05	df=39
	SD	8.01	5.71	
Vocational Help	n	8	3	2.06*
	Mean	43.50	24.33	df=9
	SD	12.27	17.89	
Religious Life	n	39	41	0.69
	Mean	27.00	25.48	df=78
	SD	8.45	10.71	
Legal Circumstances	n	22	36	5.96*
	Mean	33.63	19.00	df=56
	SD	5.69	10.59	

(cont'd)

Table XIII (cont'd)

Physical Health	n	42	42	4.59*
	Mean	10.66	7.31	df=82
	SD	1.58	4.46	
Psychological Health	n	42	42	5.38*
	Mean	10.31	6.33	df=82
	SD	1.60	4.50	
Satisfaction with Health	n	43	42	5.28*
	Mean	28.34	19.76	df=83
	SD	6.12	8.66	
OVERALL LIFE SATISFACTION	n	43	42	5.44*
	Mean	36.78	25.11	df=83
	SD	7.66	11.49	

* p < .05, df= as reported below t-statistic in each column

**Note: As the OQLI responses are situation specific, n's are not equal for all categories.

Hypothesis five

> Patients treated with the TCL program will demonstrate higher social adjustment than patients not receiving this treatment as measured by the Rehabilitation Evaluation Hall and Baker Scale in the six months following discharge.

Social Functioning

Once again, the hypothesis regarding social adjustment was supported by the results. Six months after discharge the TCL patients appeared to demonstrate higher social functioning than the control group (see Table XIV). There were statistically significant differences in deviant behaviour between the control and the experimental group subjects as shown by Chi-square. Twenty four of the experimental subjects (56%) were reported to show deviant behaviour. While thirty two (76%) were showing deviant behaviour six months after discharge. As the TCL program emphasizes community and social skill acquisition, these differences in behaviours may be due to the interventions of the TCL team.

Table XIV

Overall Percentages and Chi-Square for REHAB Scores (Social Functioning) by Group Six Months after Discharge

TIME		E (n= 43)		C (n= 42)	
		No. of Subjects	%	No. of Subjects	%
Six Months after Discharge	No Problem	19	44.19%	10	23.81%
	Deviant Behaviour	24	55.81%	32	76.19%

Chi= 3.92*

* $p < 0.05$, df=1

Hypothesis six

> The reported social costs and burden on the community and families of patients treated with TCL will be equal or lower to that of patients not receiving this treatment as measured by the Family Burden Scale and the Five Minute Speech Sample Scale in the six months following discharge.

Perceived Family Burden

Hypothesis six was supported by the results as shown by the results of the perceived family burden analysis. The families and important others of the experimental subjects reported less incidents of family burden. They also reported less disruption in all categories than did the relatives of the control subjects. Additionally, the informants reported less leisure and social time disruption incidents for the experimental than the control group, 18 occurrences of disruption compared with 19. However, the relatives of the experimental subjects reported 24 incidents of disruption of domestic routine by the experimental subjects, while the relatives of the control subjects reported only 11 such incidents. The experimental group families experienced 22 incidents of difficulties with neighbours due to their ill relatives. The control group relatives reported 41 similar incidents. Relatives of subjects in the experimental group reported 24 incidents of physical complaints about physical ailments by their relatives. Thirty two such complaints were

Table XV

Number of Reported Occurrences Perceived Family Burden by Category and Group

Category	E (n= 43)	C (n=42)
Leisure and Social Time Missed	18	19
Disruption of Domestic Routine	24	11
Difficulty with neighbours	22	41
Physical Complaints	24	32
Nuisance Behaviour	31	52
Minor Property Damage	15	28
Non-violent Victimization	33	44
Violent Victimization	01	06

reported by the control group subjects' relatives. Nuisance behaviour was reported 31 times by the families of the subjects in the experimental group over the control group subjects families which reported 52 such incidents. Minor property damage was reported to 15 times by of the subjects in the experimental group while the control group subjects families reported 28 incidents of such behaviour. Non violent victimization was reported 33 times by the families of the experimental group subjects. This is somewhat less when compared to 44 such reports by the control subjects' relatives. The experimental group subjects' families were victimized violently by the subjects once, in contrast to the control group subjects' relatives who reported six such incidents. Table XV reports these results. For the second measure of family burden, that is, the expressed emotion measure a Student t-test statistic was obtained. The results showed there was a statistically significant difference in expressed emotion between the two groups (see Table XVI).

Table XVI

Student t-Test EE scores (FMSS).

FMSS		Experimental (n=43)	Control (n=42)
Expressed Emotion	Mean	1.27	1.73
	SD	0.50	0.44

Student t-statistic: -4.44*

* $p < 0.05$, df=83

The relatives of the experimental group subjects had significantly lower levels of expressed emotion, as measured by the FMSS, which further supported hypothesis six. Only 11 families of the control group subjects reported that they felt less worried, less critical and less emotionally overinvolved (low expressed emotion) with the control group subjects. Twenty-nine families in the experimental group reported low expressed emotion. Thirty one families in the control group reported high expressed emotion. These results support the hypothesis, because according to Brown (1959), high EE is correlated with perceived family burden. Low expressed emotion is also correlated with longer community tenure, as was the case in this study. It is possible that the families of the experimental subjects displayed less expressed emotion due to the support given to them by the TCL team or by the increased nursing care provided to them.

At the conclusion of the data analysis, it was clear that there were four major findings of the study. The TCL program was less costly, in general, than the treatment programs provided to the control subjects. The quality of life of the TCL program subjects was higher than the control program subjects. Social functioning of the experimental subjects was higher than for the control group subjects. The families of the TCL program subjects experienced less burden than the hospital program subjects. The recidivism rates were significantly lower for the experimental group subjects. The implications of those results are discussed in the next chapter.

CHAPTER V

DISCUSSION

There are several factors that may influence the interpretation, as well as general conclusions, that have been drawn from the findings. Among these are the differences in organizational structure and implementation components of service delivery between Canada and the United States. As well, the size and comparability of the sample, the time span of the study, the treatment, diagnosis, and initial lenght of stay on the first admission may affect interpretation.

In Canada, mental health services are universally available and are the responsibility of the provincial government. In turn, the provincial governments have sanctioned the medical profession as the caretakers of service delivery in that mental health services in Canada are medically driven and only the physician can approve services. This results in an overutilization of hospital services, probably because that is where most psychiatrists practice.

This method of payment and utilization of services, coupled with the inability of provincial governments to allow other than physicians to sanction treatment, has resulted in a general lack of services for the mentally ill in Canada (Barnes, 1983). The lack of a consistent system of accountability, service delivery and funding has meant that the failures of the Canadian system are less thoroughly documented than are those of the Community Support Programs in the U.S.

In contrast, leadership and funding mechanisms in the U.S. are federally mandated and governed by the National Institute for Mental Health (NIMH). In the U. S., municipalities applying for federal funds to run their mental health programs must comply with NIMH funding guidelines. These guidelines include the enactment of mental health legislation by the state which permits the treatment of mentally ill persons in the community, as well as in the institution, by adding treatment methods that are less restrictive for the patient and offer an alternative to institutionalization. More importantly, at least 65% of all services offered for the mentally ill must be in the community. The state must also provide for a mechanism by which the patient is protected from lack of service. The state must have legislation by which services are "purchased" for the patient as required.

Barnes (1983), in surveying the Canadian scene, concluded from his recent review of the very limited literature on the Canadian deinstitutionalization movement that discharged patients fare no worse (and sometimes better) in the community, than in institutions, as long as adequate community support is provided. When Toews and

Barnes (1982) conducted a nationwide survey on behalf of the Canadian Mental Health Association about the state of chronic mental patients discharged to the community, their results confirmed the existence of the same difficulties as found in the United States. Patients, who have been deinstitutionalized without corresponding deployment of funds, resources, manpower and planning/leadership to community services which would permit successful community placement and improved quality of life (as reported by the patients themselves or their significant others), experience significant difficulties. The present study confirmed Barnes' finding. There are several reasons for this. In Canada, only psychiatrists have the prerogative to admit and discharge and mandate treatment for patients. The method of payment of psychiatrists by the provincial government is such that only treatments are allowed as fees. This means that a psychiatrist must provide some sort of "hands on" intervention and, also, that the patient must want to receive that intervention if the psychiatrist is to be paid.

Generally, by virtue of the nature of their illness, the chronically mentally ill are not in a position to want treatment, nor do most chronic mentally ill patients seek treatment voluntarily. This results in the psychiatrist admitting the patient involuntarily for treatment and keeping the patient in hospital until the attending psychiatrist feels that the patient is "cured". The problems inherent in the structure of this system of practice are obvious and result in an increased length of hospital stay and little community treatment and follow-up for the chronically mentally ill. In the present study, it was frequently reported by the TCL nurses that patients were kept in hospital longer than felt necessary by both the TCL staff and the patients themselves, and that many times they were kept in hospital for social rather than medical and/or psychiatric reasons. Therefore, the argument for the conclusion that the TCL program reduces recidivism and length of hospital stay is strengthened by the above observations.

Although it may be said that the therapeutic interventions of the TCL program are predicated on the assumption that hospitalization should only be used as the last resort, the results of the study show that the program was effective in all areas measured. The answer to such success may be found in the primary belief and the purpose of the TCL program, that is, to move the patient to full social independence rather than emphasizing symptom relief and containment of abnormal behaviour by severe means such as seclusion or loss of privileges, as in the control condition.

Although there were questions regarding the comparability of the sample due to the differences in their symptomatology pre and posttest, this was not considered to confound the findings as several authors have demonstrated that psychiatric symptomatology is not the only reason for patients to be labelled as suffering from a psychiatric disorder, being admitted to a facility or lack social and functional skills (Brekke, 1988; Harris, Bergman & Bacharach, 1986; Harris & Bergman, 1988; Stein & Test, 1980). It may be argued that some bias was introduced when measuring symptomatology. The SCRS diagnosis is based on clinical judgment rather than on strict diagnostic criteria. Research assistants were carefully trained, but after the initiation of study, further reliability estimates were not made. However, because the research assistants were psychiatric nurses with several years of experience, their reliability in relation to their clinical assessments and diagnosis was considered to be acceptable.

The representation of the sexes across groups was slightly different: 30 males and 13 females in the experimental group, while the control group had 25 males and 17 females. The representation was so close that this was not considered to make a difference. Furthermore, there is no evidence in the literature that rehabilitation of chronic mentally ill persons is influenced by gender.

Although it appears that the severity of symptoms was similar across groups, the number of instances of experimental mortality in relation to data on the cognitive measures, as well as problems alluded to previously regarding SCRS, should be borne in mind when drawing conclusions from the study. It must be noted that it is not possible to ascertain if the gains made by the experimental group are due to the close follow-up and attention or to the therapeutic interventions of the TCL program. However, close follow-up is deemed to be a therapeutic intervention according to the TCL conceptual model (Harris & Bergman, 1988; Harris & Bachrach, 1988; Stein & Test, 1980). Therefore, it may be argued that since close follow-up is an intrinsic part of the TCL program, the effects can be attributed to the TCL program.

It is of some importance to indicate that this study did not control or match the subjects for: a)diagnosis, b)medication, c)therapies received or, d) length of stay after selection for the study. It was assumed that randomization would have controlled for this. In view of the differences in the SCRS and IQ scores between the groups, this may not have been the case. Hence, caution should be employed in the generalization of these results to all populations and in interpretation of the conclusions of this study.

It should be pointed out that there were differences in the venues between this study and the original TCL research. This study was conducted in a community that differs substantially both ethnically and culturally from the community in which the initial TCL studies were carried out.

However, evidence from the Australian replication that Hoult and his associates carried out in 1983 appear to demonstrate that the TCL program can be successfully instituted in very different venues.

A limitation of the study noted above is that the time lapse of six months after discharge may not be sufficient to measure gains and effectiveness of a treatment program. Most evidence indicates that highest recidivism occurs at 18 months post discharge (Goldberg, Schooler, Hogarty & Roper, 1977; McGlasham, 1984a, 1984b, 1984c). However, evidence has been presented recently by Hafner and an der Heiden (1989) that indicates that recidivism rates are not dependent upon time but rather are controlled by social conditions. Harris, Bergman, and Bacharach corroborate this in their studies of rehospitalization indicators (1986, 1988).

The results obtained corroborated all hypotheses. Hypothesis one;

> Patients who are treated with TCL will have lower recidivism rates than patients who do not receive this treatment in the six months following discharge.

was supported by the results. The experimental group had a substantially lower number of admissions and lower number of days in hospital when admitted that the control subjects. Differences in the number of hospitalizations (recidivism rate) was statistically significant between groups. However, caution should be exercised in drawing strong conclusions about this result, as the time span of the study was too short to conclude that the lower recidivism rate of the experimental group subjects was solely related to the TCL treatment condition. Nonetheless, the results indicate that the TCL program was an effective alternative to psychiatric hospital treatment in reducing hospitalization rates in the short term. Specifically, with minimal use of the hospital, it was possible to treat chronically mentally ill persons who experienced varied diagnoses and social disability in the community. While most of the control subjects were admitted to the hospital for long periods of time and many were subsequently readmitted, almost all of the TCL recipients had long community tenure for six months after discharge.

Hypothesis two;

> Patients who are treated with TCL will experience fewer psychiatric symptoms, as measured by the Short Clinical Rating Scale, than patients who do not receive this treatment in the six months following discharge.

was also supported. Experimental subjects had fewer and less severe symptoms than the controls. The striking difference in symptomatology is an important finding of this study. It also supports an important tenet of TCL the more comprehensive the community program, the less need there is to use the hospital. The results indicated that even with the difficulties experienced by the TCL nurses in implementing the program, important gains in the prevention of rehospitalization were made.

Although hypothesis three;

> The total treatment and community maintenance cost for patients treated with TCL will not be higher than that for patients not receiving this treatment in the six months following discharge.

was supported by the results, it would be inadvisable to draw comparative conclusions about costs from the findings because it was not possible to measure the value of every one of the relevant benefits and costs. For example, it was not possible to provide accurate monetary values for direct or indirect service costs as those are estimated by a number of individual and government agencies.

Patients participated in the experiment for six months, but if the experimental approach was to be measured for a longer period of time, patients would presumably have continued to access services and, thus, increased costs. However, there is evidence that the experimental treatment was less expensive and that the experimental subjects benefited more from the TCL program than the control subjects did from the hospital program as indicated by the results on symptomatology, quality of life, social functioning and family/community burden. Of particular import is the fact that the TCL recipients had higher benefits and employment levels than non-recipients.

Hypothesis four;

> The reported quality of life of patients who are treated with TCL will be higher than that of patients not receiving this treatment, as measured by the Oregon Quality of Life Inventory, in the six months following discharge.

It should be noted that concomitantly with lower costs the quality of life of the experimental subjects was greater than that of the control subjects. This important finding verifies hypothesis four. While the experimental subjects had fewer symptoms, higher social functioning, fewer hospital admissions, and, when admitted, spent fewer days in hospital, their quality of life was higher on all aspects of the measures than the control subjects. Most important, the data indicated that sustained community tenure of experimental subjects was not gained at the expense of quality of life or personal satisfaction with life. Instead, relative to the control subjects, the experimental subjects demonstrated higher social functioning in all significant areas of the REHAB scale.

This is probably the most important finding of the study and it corroborates the findings of previous researchers (Test & Stein, 1980). What is noteworthy here is that the measures of quality of life were much more strict and complete that in previous studies. The results indicate that chronically mentally ill patients can have a satisfactory level of quality in their lives in spite of their disability. Quality of life of the ESs was increased due to the interaction of several factors, that is, increased social functioning which led to increased earnings and independence. These are behaviours that the TCL team encouraged and promoted, and, thus, increased quality of life may be attributed to the TCL program. Horner (1969) pointed out that when the sick take more responsibility for decision making and control over the treatment of their illness, quality of life increases. He emphasized that when health personnel listen closely to the sick person and their important others, intelligent transactions and increased satisfaction ensues. All of these are integral parts of the TCL philosophy and treatment program. The reported superior quality of life by the experimental subjects may be interpreted as a direct result of the interaction of the TCL personnel and the application of the TCL treatment philosophy to the care of the ESs.

These findings, decreased symptomatology and enhanced quality of life, also support hypothesis five which dealt with higher social functioning;

> Patients who are treated with TCL will demonstrate higher social adjustment than patients not receiving this treatment, as measured by the

> Rehabilitation Evaluation Hall and Baker Scale, in the six months following discharge.

Experimental group subjects displayed more socially adept behaviours and a higher level of social functioning than controls. It is difficult to ascertain if social functioning and psychopathology are linked in a cause and effect paradigm from the present study's results. However, it is likely that decrease in symptomatology, increased quality of life and increased social functioning are closely related. Increased social functioning and skill acquisition are central to the TCL philosophy and these results are what might be expected from the TCL program.

Hypothesis six referred to an attempt to ascertain whether or not the TCL program placed more burden on the family and/or important other and/or the community than the hospital program:

> The reported social costs and burden on the community and families of patients treated with TCL will be equal or lower to that of patients not receiving this treatment, as measured by the Family Burden Scale and the Five Minute Speech Sample Scale, in the six months following discharge.

The results suggested that the experimental approach placed less burden on the family and/or important others and/or the community. Confidence in this conclusion is dependent upon examination of the following consideration. Caution should be exercised in accepting results when sample size is small and statistical power low. However, looking beyond methodological considerations, results indicated that the TCL program subjects were reported to impose less burden to their families and communities than the CSs. This corroborated the Test and Stein (1980) finding and it was probably due to the increased support that the families and the community received from the TCL team, a crucial part of the TCL approach. It may well have been due to changes in the patients' behaviour, as a result of the TCL program, or to the support provided to the family and community members by the TCL nurses, or both.

In any case, the FMSS results which showed that the lower EE of the experimental subjects' families in comparison with than the families of the control subjects, seemed to demonstrate that the interventions of the TCL team with families were successful in lowering the EE of at least some families. This seems logical as the distribution of high EE in the families of the experimental subjects was lower than that reported in the literature by Magaña and her colleagues (1986). The interventions, that were modeled in Falloon's (1983, 1985) behaviourial intervention method with families, follow the same distribution of incidence of low EE. Thus, it appears that the TCL program reduced EE and, hence, reduced the burden of the families and important others. However, there was not sufficient evidence that EE was lowered as a result of the TCL interventions, nor was there a way of knowing this from the results as the EE of the families of the experimental subjects was not measured prior to treatment. It is safe to say that the families of the experimental subjects showed lower EE and FBS probably due to the behaviourial family intervention and support provided by the TCL nurses.

The study emphasized the necessity of investigating treatment effectiveness by using a multifactorial approach. The findings suggested that comprehensive community programs, such as the TCL approach, are more effective than hospital based programs. It also pointed out that disability and symptomatology are not necessarily an indication to hospitalize the patient, supporting the evidence of Harris and Bergman (1988) who demonstrated that acutely psychotic patients could be successfully treated with minimal use of the hospital.

This study corroborated the findings of other researchers (Hoult & Rosen, 1983a; Mulder, 1982; Test & Stein, 1980) and barring its limitations, the data indicated that the majority of the study's hypotheses were confirmed.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A community treatment program for chronically mentally ill persons based on the TCL conceptual model was compared with conventional hospital treatment. Results showed that the use of the community program for six months after discharge from hospital: 1) reduced the need to hospitalize patients and reduced length of hospitalization following admission, 2) demonstrated that the TCL patients had a higher quality of life than hospital treatment patients, 3) revealed that the TCL patients relatives experienced less disruption and burden than the relatives of the hospital treatment group, 4) identified that the severity and number of psychiatric symptoms were less in the TCL treatment group than the hospital treatment group, 5) showed that the TCL patients demonstrated higher social functioning than their counterparts in the hospital treatment group and, 6) confirmed that the costs of treating patients with the TCL method were substantially less than those of treating the patients with the hospital treatment.

In spite of some limitations namely, questions about the comparability of the sample, the lack of control in the medication, diagnostic and length of stay variables, differences in cultural background between the study's subjects and the original TCL research. The TCL treatment appeared to be an effective and more economical alternative to psychiatric hospital treatment for most of the subjects. More specifically, with minimal use of hospital care, it was possible to treat patients with severe and chronic mental illness in the community. The experimental subjects were admitted to hospital, but at a lower rate and for substantially less time than the control subjects. The community tenure of TCL patients was longer than that of the psychiatric hospital control patients. What is more important is that the data indicated that their sustained community living was not gained at the expense of a lower quality of life. On the contrary, the experimental patients indicated a higher quality of life than their control cohorts. The experimental subjects also showed enhanced social functioning and independence in all areas of functioning. The TCL patients had less symptomatology and greater life satisfaction than the control group subjects.

The TCL patients' families and important others reported a lower burden caused by their ill relatives than the control group. This is also a significant finding as the literature has indicated at community treatment leads to an increase in family and community burden. Results primarily reflect the enormous amount of support given to the patients by their relatives, important others, and the community. This is a crucial part of the TCL program. TCL patients were not "dumped" in the community, but, rather, were given intensive assistance in virtually every aspect of their daily living.

The TCL program lead to improvement in clinical and social functioning in the experimental subjects relative to the control group subjects. The TCL patients' gains may have lead to a reduction in the kinds of deviant behaviour that are a burden to the family, important others, and communities. In conjunction with the possibility that patient behaviour may be the result of the TCL treatment, the support given to the family and the community members in the TCL program may have helped alleviate the impact of the patients' abnormal behaviour and its effects upon the family. The same can be said of expressed emotion. It may be that families in the experimental group were helped to deal with the patients' behaviours to such an extent as to have a lower expressed emotion than their counterparts in the control group.

Some other major findings relate to costs. The cost of treating patients in the community is high, but only half as expensive as treating the patient in a psychiatric facility. Furthermore, patient social functioning is lower and the recidivism rate is higher when assertive follow-up is not provided. Direct treatment costs represent only 40% of the real costs. A sizeable proportion of the costs are in the form of indirect services. TCL patients deferred costs by contributing to society's tax base through employment earnings.

These findings and the tentative indication that, regardless of limitations, the TCL treatment program is more effective leads to the study's first recommendation:

> The feasibility of providing comprehensive and assertive community follow-up programs, based on the TCL conceptual model, should be investigated by the mental health delivery system.

The mental health delivery system should engage in sound research regarding the effectiveness of mental health delivery programs which enhance the quality of life of the individual while increasing social functioning. Comprehensive and assertive community based delivery systems that encourage less restrictive and less invasive interventions should be further studied. Although cost effectiveness is an important consideration of any service delivery system, costs should be secondary to the individual's needs. The quality of life of the individual and the principle of least restrictive treatment should guide decisions affecting mental health delivery systems. The mental health delivery system should be predicated by its comprehensiveness with a full array of services both in hospital and in the community. Hospitalization should be available, when required, but, it should be closely monitored by those without any vested interest in the system. In Canada, patient advocate organizations (such as the Friends of Schizophrenics) and independent mental health organizations (such as the Canadian Mental Health Association) are devoid of vested interests from professional organizations and do not rely solely on governments for funding. There is a role in the monitoring of service provision and advocacy for a less restrictive treatment environment for both groups. Health promotion measures should be part of any comprehensive system and the exploration of delivery systems should include health promotion strategies.

The findings of this study, regarding the effectiveness of the TCL program, also led to the second recommendation of this study:

> Community mental health delivery systems should be evaluated in a multifactorial fashion outlining costs, recidivism, quality of life, social functioning, clinical symptomatology and community perceived burden among the variables under study.

It is apparent that chronic mental patients can be maintained in a community setting without loss of quality in their lives. The chronically mentally ill can be retrained and maintained in employment situations. Given the basic assumption that the model chosen was appropriate for the questions posed, the time frame for the collection of data is of concern. If the model is appropriate and TCL is a more effective form of treatment, then one might postulate that a longer period is necessary to ascertain the effectiveness of the program. It might be suggested that two years of follow-up after discharge from a mental hospital is not unreasonable judging by the suggestions arising from the literature review. Since the effectiveness of the model is being studied here, some caution must be exercised in terms of drawing conclusions about the long term effectiveness of the program. However, the results are encouraging and point out that the TCL is effective in preventing rehospitalization and controlling costs.

Further Studies

This study dealt with the effectiveness of the TCL model in a Canadian venue. The study assumed that the model was appropriate to follow the progress and effectiveness of a treatment program for the chronically mentally ill. The next step should be an investigation of that assumption by analyzing the effects of the program by diagnostic categories, sex distribution and time. The components of the model should be isolated and studied in order to identify what works with whom. This suggestion leads to the last recommendation:

> Further studies on the effectiveness of the TCL program should be carried out with large sample sizes as well as a varied and controlled sample. Studies should also try to isolate treatment components and discrete outcomes of different kinds of interventions to determine which intervention was more beneficial, more cost effective and more conducive to an enhancement of

the patient's quality of life.

Results of this study suggest that given adequate community programming, admission to psychiatric hospital can be prevented for the majority of these patients. The data points out that treatment programs constructed to help chronically ill patients in a comprehensive way, whose aim is towards stabilization and normalization of social functioning and increased community tenure, are useful and cost effective methods of treatment for this population. An important lesson to be derived from this study is that nurses can be extremely effective in a program such as TCL.

The nursing profession should encourage and support the implementation of programs modeled on the TCL philosophy. These programs are akin to the philosophy of nursing and to the promotion of nurses as primary and independent practitioners because of their true holistic and primary intervention methods. The TCL nurses balanced the division of labor between health personnel and the rest of the population. The TCL condition subjects and their important others had much more responsibility for decision making and more explicit functions in caring for themselves. Their relatives and important others were listened to closely for their viewpoints and suggestions for treatment. The net result of this collaboration was, at least in part, responsible for the program's success as it allowed the nurses to employ their skills in a caring, efficient and independent manner. Nursing should look at programs such as TCL as an avenue to implement their goals for independent and autonomous practice. For the nurses in the TCL program, the subjects were also fellow citizens in the true sense of the word. Nursing interventions by the TCL nurses were only possible if the subject was a partner and active participant in care rather than in a passive role as a client recipient. This is the true aim of nursing, that is, to give the patient the necessary knowledge and skills to become independent and control the direction of his/her life. The challenge for nursing is, presumably, whether this can be achieved by the profession. Whether nurses can be successful in implementing such programs and adapt them to local conditions is the real challenge.

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APPENDICES

Appendix I: Consent Forms

TRAINING FOR COMMUNITY LIVING PROJECT - CONTROL GROUP

CONSENT TO PARTICIPATE

I, the undersigned, understand that I am being asked to participate in a research project. I will be assigned to the control group of the project. As such, I will be asked to answer survey questions on a regular basis concerning my illness symptoms, social adjustment and quality of life.

The treatment and care I shall receive will not be affected or altered because of my participation in the project as a control group patient.

I understand that I can withdraw from the project at any time. The information I have volunteered will be kept strictly confidential unless I consent to its release. I realize the project's report may contain information about me but that my identity will be protected.

I agree to participate in this research project and understand the purpose as well as the consequences of this study.

PARTICIPANT:

WITNESS:

DATE:

(cont'd)

Appendix I (cont'd)

TRAINING FOR COMMUNITY LIVING PROJECT - EXPERIMENTAL GROUP

CONSENT TO PARTICIPATE

I, the undersigned, understand that I am being asked to participate in a research project. I will be assigned a community mental health nurse who will work closely with me for two years so that I can live independently in the community. The community mental health nurse will assist me with independent living, daily living skills and self care.

In order to evaluate the success of the project, I will be asked to answer survey questions on a regular basis concerning my illness symptoms, social adjustment and quality of life.

I understand that I can withdraw from the project at any time. The information I have volunteered will be kept strictly confidential unless I consent to its release. I realize the project's report may contain information about me but that my identity will be protected.

I agree to participate in this research project and understand the purpose as well as the consequences of this study.

PARTICIPANT:

WITNESS:

DATE:

Appendix II: Training for Community Living - Conceptual Model Factor Requirements for Community Living

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The TCL conceptual model contends that current hospital and community treatment modalities do not effectively address certain factors that are required by patients in order to function in the community. The absence of one or more of these factors leads to a tenuous community adjustment that keeps patients on the brink of rehospitalization. These requirements, which are derived from clinical and research data and from the literature are as follows:

1. Material resources such as food, shelter, clothing, and medical care. Community treatment programs must assume responsibility for helping the patient acquire these resources.
2. Coping skills to meet the demands of life. These skills we take for granted, such as using public transportation, preparing simple but nutritious meals, and budgeting money. Learning these skills should take place in vivo, where the patient will be needing and using them.
3. Motivation to persevere and remain involved with life. Our patients experience stress, and their motivation to

(cont'd)

remain in the community is easily eroded. A readily available system of supports to help the patient solve real-life problems, feel that he/she is not alone, and feel that others are concerned is crucial.

4. Freedom from pathological dependent relationships. We define a pathological dependent relationship as one that inhibits personal growth, reinforces maladaptive behaviour, and generates feelings of panic when its loss is threatened. Many have had a lifelong pathological dependence on families or institutions. Hospitalization can deepen this, and on discharge the patient is often returned to a highly conflictual family situation that leads to the revolving door syndrome. To break that cycle and dependency, community programs must provide sufficient support to keep the patient involved in community life and to encourage growth toward greater autonomy.

5. Support and education of community members who are involved with patients. An important factor that influences patient behaviours and thus community tenure are the ways in which community members (family, law enforcement personnel, agency people, landlords, etc.) relate to patients. Community programs must provide

(cont'd)

Appendix II (cont'd)

support and education to help these community members to relate in a manner that is both beneficial for the patient and acceptable to them.

6. A supportive system that assertively helps the patient with the previous five requirements. Chronically disabled patients are frequently passive, interpersonally anxious, and prone to develop severe psychiatric symptomatology. Such characteristics often lead these patients to fail to keep appointments and to "drop out" of treatment, particularly when they are becoming symptomatic. Hence, the program must be assertive, involve patients in their treatment, and be prepared to "go to" the patient to prevent dropout. It must also actively insure continuity of care among treatment agencies rather than assume that the patient will successfully negotiate the often difficult pathways from one agency to another on his own.

Note: Adapted from "Alternative to Mental Hospital Treatment. I Conceptual Model, Treatment Program and Clinical Evaluation" by L. I. Stein and M. A. Test, 1980, Archives of General Psychiatry, 37, p. 393.

Appendix III: Costs and Benefits per Patient in Experimental (E) and Control (C) by Category of Cost and Benefit in dollars.

COSTS		E (n= 43)	C (n= 42)
Direct Treatment Costs:			
Psychiatric Hospital	Mean	$1350.88	$7893.81
	SD	2907.91	7964.24
TCL Program	Mean	$2697.21	$0000.00
	SD	229.44	0000.00
Indirect Treatment Costs:			
Social Services Agencies	Mean	$97.56	$124.41
	SD	95.96	119.38
Psychiatric Clinic Visits	Mean	$653.48	$873.81
	SD	523.88	972.07
Hospitals	Mean	$59.31	$453.57
	SD	224.74	910.60
Medical Clinic (includes Physician & MD Visits)	Mean	$28.60	$159.52
	SD	95.83	189.43
Other Services (VON, PHN etc)	Mean	$41.28	$26.79
	SD	247.66	73.75

(cont'd)

Appendix III (cont'd)

Law Enforcement Costs:

Overnight in Jail	Mean	$4.07	$25.59
	SD	26.68	74.39
Court Contacts	Mean	$29.07	$58.33
	SD	156.30	243.43
Probation & Parole	Mean	$34.88	$71.43
	SD	228.75	260.66
Police Contact	Mean	$28.49	$95.83
	SD	100.53	279.26

Maintenance Costs:

Assured Income for the Severely Handicapped (AISH)	Mean	$1138.60	$2382.86
	SD	1880.37	1982.91
Welfare	Mean	$1224.18	$540.00
	SD	1086.62	910.23
Other Costs (social security disability pension etc.)	Mean	$209.30	$3.71
	SD	958.87	24.07

(cont'd)

Appendix III (cont'd)

Family Burden Costs (includes costs to approved home operator and others)

Loss of Earnings due to Patient Behaviour	Mean	$89.30	$58.81
	SD	155.35	327.65
Loss of Earning due to patient appointment and clinic visits	Mean	$46.51	$000.00
	SD	304.99	000.00
Family Costs for Supervising patient ("patient sitting")	Mean	$000.00	$000.00
	SD	000.00	000.00
BENEFITS			
Directly by the Patient from Competitive Employment	Mean	$435.53	$173.42
	SD	667.05	474.98
Directly by the Patient from Sheltered Employment	Mean	$4.01	$5.36
	SD	18.54	34.72

(cont'd)

Appendix III (cont'd)

Summary of Costs-Benefits by Category by Group

Direct Treatment Costs	Mean	$4048.09	$7893.81
	SD	2697.25	7964.24
Indirect Treatment Costs	Mean	$880.23	$1738.09
	SD	657.69	1841.51
Legal and Law Enforcement Costs	Mean	$96.51	$251.19
	SD	418.74	777.36
Maintenance Costs	Mean	$2572.09	$2926.57
	SD	1572.04	1450.02
Family Burden Costs	Mean	$135.84	$58.81
	SD	329.62	327.65
Total Costs	Mean	$7732.74	$12868.48
	SD	3491.22	7649.73
	MEDIAN	$6285.00	$11217.50

Summary of Earnings:

Total Earnings	Mean	$439.54	$178.77
	SD	666.66	474.22
	MEDIAN	$82.00	$000.00

(cont'd)

Appendix III (cont'd)

Net Costs (Benefits minus Costs)

Net Costs	Mean	$7293.20	$12689.70
	SD	3609.12	7792.35
	MEDIAN	$6285.00	$11105.00